Alviso Village Townhomes

Technical Appendices to the
Initial Study/Mitigated Negative Declaration

CONTENTS

Appendices

(Appendices can be viewed or downloaded at: [URL]

Appendix AQ-1

Air Quality Setting and Regulatory Context

The project site is located within the San Francisco Bay Area Air Basin (Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The Air Basin is characterized by complex terrain which distorts normal wind flow patterns, consisting of coastal mountain ranges, inland valleys, and bays.

Regional Meteorology

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological and geographical conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The climate of the greater San Francisco Bay Area, including Santa Clara County, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are favorable to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The proposed project lies in the Santa Clara Valley climatological sub-region of the Bay Area. The northwest-southeast oriented Santa Clara Valley is bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, and the San Francisco Bay to the north. Temperatures are warm in summer, under mostly clear skies, although a relatively large diurnal range results in cool nights. Winter temperatures are mild, except for very cool but generally frostless mornings. The San Jose Airport mean maximum temperatures range from the high 70's to the low 80's during the summer to the high 50's to the low 60's during the winter, and mean minimum temperatures range from the high 50's during the summer to the low 40's during the winter.[1]

Rainfall amounts are modest ranging from 13 to 20 inches annually. The wind patterns in the Santa Clara Valley are influenced greatly by the terrain, resulting in a prevailing flow roughly parallel to the valley's northwest-southeast axis with a north-northwesterly sea breeze

[1] Bay Area Air Quality Management District. October 4, 2010, Bay Area Climatology http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Bay-Area-Climatology.aspx.

extending up the valley during the afternoon and early evening and a light south-southeasterly drainage flow occurring during the late evening and early morning.[2] The regional average annual wind speed is 6.6 miles per hour.

Local Air Quality

The Bay Area Air Quality management District (BAAQMD) maintains a network of monitoring stations within the Air Basin that monitor air quality and compliance with applicable ambient standards. The monitoring station closest to the project site is in San Jose, approximately 2.7 miles east of the project site; where levels of ozone, particulate matter less than 10 micrometers (PM10), particulate matter less than 2.5 micrometers (PM2.5), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are recorded.

Table AQ-1 summarizes the most recent three years of data (2012 through 2014) from the San Jose air monitoring station. The federal 24-hour PM2.5 standard was exceeded twice in 2014, six times in 2013, and twice in 2012; while the State PM10 standard was exceeded once in 2014, five times in 2013 and once in 2012. The federal 8-hour ozone standard was exceeded once in 2013; while the State 1-hour ozone standard was exceeded once in 2012. No other State or federal air quality standards were exceeded during the three-year period.

The Bay Area is currently designated "nonattainment" for state and national (1-hour and 8-hour) ozone standards, for the state PM10 standards, and for state and national (annual average and 24-hour) PM2.5 standards. The Bay Area is designated "attainment" or "unclassifiable" with respect to the other ambient air quality standards.

[2] Bay Area Air Quality Management District. October 4, 2010, Bay Area Climatology http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Bay-Area-Climatology.aspx.

Table AQ–1: Air Quality Data Summary (2012 through 2014)

Pollutant	Standard[a]	Monitoring Data by Year 2012	2013	2014
Ozone				
Highest 1 Hour Average (ppm)[b]	0.09	**0.101**	0.093	0.089
Days over State Standard		**1**	0	0
Highest 8 Hour Average (ppm)[b]	0.075	0.062	**0.079**	0.066
Days over National Standard		0	**1**	0
Nitrogen Dioxide (NO_2)				
Highest 1 Hour Average (ppm)[b]	0.180	0.067	0.059	0.058
Days over State Standard		0	0	0
Annual Average ($\mu g/m^3$)[b]	0.030/0.053	0.013	0.015	0.013
Carbon Monoxide (CO)				
Highest 1 Hour Average (ppm)[b]	9.0	2.6	3.1	2.4
Days over State Standard		0	0	0
Highest 8 Hour Average (ppm)[b]	20	1.9	2.5	1.9
Days over State Standard		0	0	0
Coarse Particulate Matter (PM10)				
Highest 24 Hour Average ($\mu g/m^3$)[b]	50	**59.6**	**58.1**	**55.0**
Days over State Standard		**1**	**5**	**1**
State Annual Average ($\mu g/m^3$)[b]	20	18.8	**22.3**	19.9
Fine Particulate Matter (PM2.5)				
Highest 24 Hour Average ($\mu g/m^3$)[b]	35	**38.4**	**57.7**	**60.4**
Days over National Standard		**2**	**6**	**2**
State Annual Average ($\mu g/m^3$)[b]	12	9.1	**12.4**	8.4

*NOTES: Values in **bold** are in excess of at least one applicable standard.*
Generally, state standards and national standards are not to be exceeded more than once per year.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
PM10 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

Source: USEPA (http://www.epa.gov/air/data/) CARB Air Quality Data Statistics (http://www.arb.ca.gov/adam/welcome.html, 2012–2014.

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor air toxics in the Bay Area. Based on findings of the latest report, diesel particulate matter (DPM) was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed four percent of the cancer risk-weighted emissions, and benzene contributed three percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for California Air Resources Board (CARB)'s diesel regulations. Overall, cancer risk from toxic air

contaminants (TAC) dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.[3]

Modeled cancer risks from TAC in 2005 were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. Peak modeled risks were found to be located east of San Francisco, near West Oakland, and the maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

- Western Contra Costa County and the cities of Richmond and San Pablo.
- Western Alameda County along the Interstate 880 corridor and the cities of Berkeley, Alameda, Oakland, and Hayward.
- San Jose.
- Eastern side of San Francisco.
- Concord.
- Vallejo.
- Pittsburgh and Antioch.

The proposed project is within the city of Santa Clara, which is not part of the seven CARE program impacted communities in the Bay Area. The health impacts in the Bay Area, as determined both by pollution levels and by existing health vulnerabilities in a community, is approximately 160 cancer risk per million persons, while in Santa Clara, the health impacts is approximately 204 cancer risk per million persons.[4]

Nearby Sensitive Receptors

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences,

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[3] BAAQMD. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective & Path Forward (2004 – 2013). April 2014. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CARE%20Program/Documents/CARE_Retrospective_April2014.ashx?la=en

[4] BAAQMD. Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area. March 2014. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CARE%20Program/Documents/ImpactCommunities_2_Methodology.ashx?la=en

resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. According to the BAAQMD, workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. The project site is directly adjacent to El Camino Real and the De La Cruz Boulevard off-ramp to the south. To the north, the site is bounded by industrial storage space, and to the east and northeast the site is bounded by existing railroad tracks belonging to the Union Pacific Railroad with CalTrain operations. To the west, across Alviso Street, are single family homes and the Mission Inn.

Santa Clara University is located approximately 2,000 feet south of the project site. Larry Marsalli Park is located to the south of the project site and is used for recreational purposes. Traffic on State Route 82, located along the southern adjacent to the project site, and rail operations located to the east of the project site, are sources of air pollutants that would affect future project residents.

Air Quality Significance Thresholds

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G, and the BAAQMD *CEQA Air Quality Guidelines*. Using Appendix G evaluation thresholds, the proposed project would be considered to have significant air quality impacts if it were to:

A. Conflict with or obstruct implementation of the applicable air quality plan;

B. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

C. Expose sensitive receptors to substantial pollutant concentrations;

D. Create objectionable odors affecting a substantial number of people; or

E. Result in a cumulatively considerable net increase of any nonattainment pollutant, and/or health impacts (including releasing emissions that exceed quantitative thresholds for ozone precursors).

The air quality analysis follows the methodology presented in the recent CEQA Guidelines released by the BAAQMD in May 2012. However, since the May 2012 *CEQA Air Quality Guidelines* do not provide specific significance thresholds, the thresholds and methodologies from the BAAQMD's 2011 *CEQA Air Quality Guidelines* were used to evaluate the potential impacts of remediation activities. The thresholds of significance applied to assess project-level air quality impacts are:

- Average daily construction exhaust emissions of 54 pounds per day of ROG, NO_x, or PM2.5 or 82 pounds per day of PM10;

- Average daily operation emissions of 54 pounds per day of ROG, NO_x, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or PM2.5 or 15 tons per year of PM10;
- Exposure of persons by siting a new source or a new sensitive receptor to substantial levels of TACs resulting in (a) a cancer risk level greater than 10 in one million, (b) a noncancerous risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM2.5 of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers; or
- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

Assessment of a significant cumulative impact if it would result in:

- Exposure of persons, by siting a new source or a new sensitive receptor, to substantial levels of TACs during either construction or operation resulting in (a) a cancer risk level greater than 100 in a million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 $\mu g/m^3$.

The BAAQMD air quality significance thresholds are found in **Table AQ-2**.

The BAAQMD *CEQA Air Quality Guidelines* identify a project-specific threshold of either 1,100 metric tons of CO_2e per year or 4.6 metric tons of CO_2e per year per service population (i.e., the number of residents plus the number of employees associated with a new development), which is also considered a cumulatively considerable contribution to the global GHG burden and, therefore, a significant cumulative impact. This analysis applies the 4.6 metric tons of CO_2e per year per service population significance criterion to the proposed project GHG emissions.

Table AQ–2: BAAQMD Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Daily Operational Thresholds	Annual Operational Thresholds
Criteria Air Pollutants			
Reactive Organic Compounds (ROG)	54	54	10
Nitrogen Oxides (NOx)	54	54	10
Coarse Particulate matter (PM10)	82	82	15
Fine Particulate Matter (PM2.5)	54	54	10
Carbon Monoxide (CO)	NA	9.0 ppm (8-hour) and 20.0 ppm (1-hour)	
Fugitive Dust	Best Management Practices	NA	
Project Health Risk and Hazards			
Excess Cancer Risk	10 per million	10 per million	
Chronic Hazard Index	1.0	1.0	
Acute Hazard Index	1.0	1.0	
Incremental Annual Average PM2.5	0.3 $\mu g/m^3$	0.3 $\mu g/m^3$	
Cumulative Health Risk and Hazards			
Excess Cancer Risk	100 per million	100 per million	
Chronic Hazard Index	10.0	10.0	
Acute Hazard Index	10.0	10.0	
Incremental Annual Average PM2.5	0.8 $\mu g/m^3$	0.8 $\mu g/m^3$	
Greenhouse Gas Emissions			
Annual Emissions	1,100 metric tons or 4.6 metric tons per capita		

SOURCE: BAAQMD Adopted Air Quality CEQA Thresholds of Significance - June 2, 2010, http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Summary_Table_Proposed_BAAQMD_CEQA_Thresholds_May_3_2010.ashx?la=en

Appendix AQ-2

Air Quality Calculation Assumptions and Methodologies

The air quality analysis focuses on daily and annual emissions from the proposed project construction activities (offroad equipment, haul trucks, and fugitive dust) and operations. This air quality analysis is consistent with the methods described in the BAAQMD *CEQA Air Quality Guidelines* (dated June 2010, updated in May 2011, and revised in May 2012).[1] Mitigation measures are presented to reduce impacts to less than significant, as applicable.

Air quality calculations were made for combustion sources such as on-road vehicles from employees and haul trucks as well as onsite combustion equipment such as loaders and excavators. Fugitive dust from grading, loading/unloading, and vehicle movement on unpaved surfaces was also calculated.

The air quality analysis includes a review of criteria pollutant[2] emissions such as carbon monoxide (CO)[3], nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG)[4], particulate matter less than 10 micrometers (PM10), particulate matter less than 2.5 micrometers (PM2.5).[5] The HRA addresses diesel particulate matter (DPM) emissions from on-site offroad equipment and haul trucks and cumulative impacts from nearby roadways such as State Route 82.

Regulatory models used to estimate air quality impacts include:

- California Air Resources Board's (CARB) EMFAC[6]emissions inventory model. EMFAC is the latest emission inventory model that calculates emission inventories and emission

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1 The Air District's June 2010 adopted thresholds of significance were challenged in a lawsuit. Although the BAAQMD's adoption of significance thresholds for air quality analysis has been subject to judicial actions, the lead agency has determined that BAAQMD's Revised Draft Options and Justification Report (October 2009) provide substantial evidence to support the BAAQMD recommended thresholds. Therefore, the lead agency has determined the BAAQMD recommended thresholds are appropriate for use in this analysis.

2 Criteria air pollutants refer to those air pollutants for which the United States Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) has established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) under the Federal Clean Air Act (CAA).

3 CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces.

4 VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROGs are any reactive compounds of carbon, excluding methane, CO, CO_2, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

5 PM10 and PM2.5 consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

6 CARB EMFAC User's Guide, December 20, 2012, http://www.arb.ca.gov/msei/modeling.htm

rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.

- CARB OFFROAD[7] emissions inventory model. OFFROAD is the latest emission inventory model that calculates emission inventories and emission rates for off-road equipment such as loaders, excavators, and off-road haul trucks operating in California. This model reflects CARB's current understanding of how equipment operates and how much they emit. OFFROAD can be used to show how California off-road equipment emissions have changed over time and are projected to change in the future.

- CalEEMod (California Emissions Estimator Model Version 2013.2.2)[8] land use emissions model estimates emissions due to demolition and construction activities and operations.

- AERMOD (American Meteorological Society/USEPA Regulatory Model) is an atmospheric dispersion model which can simulate point, area, volume, and line emissions sources and has the capability to include simple, intermediate, and complex terrain along with meteorological conditions and multiple receptor locations.[9,10] AERMOD is commonly executed to yield 1-hour maximum and annual average concentrations (in $\mu g/m^3$) at each receptor.

Construction activities are expected to commence in 2016 with demolition of the existing structures. Grading and site improvements would occur during the first quarter of 2016 and building construction would occur through the remaining portion of 2016 until the last quarter of 2017. Construction activities would be completed following paving and architectural coating in the last quarter of 2017. **Table AQ-3** provides the estimated construction schedule for each phase: demolition, site preparation, grading, building construction, paving, and coating.

Table AQ-3: Estimated Project Construction Schedule

Phase	Description	Start	End	Working Days
1	Demolition	1/1/2016	1/28/2016	20
2	Site Preparation	1/29/2016	2/2/2016	3
3	Grading	2/3/2016	2/10/2016	6
4	Building Construction	2/11/2016	12/01/2017	472
5	Paving	12/2/2017	12/15/2017	10
6	Architectural Coating	12/16/2017	12/29/2017	10

SOURCE: CalEEMod Version 2013.2.2.

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7 CARB OFFROAD Instructions, http://www.arb.ca.gov/msprog/ordiesel/info_1085/oei_write_up.pdf

8 California Emissions Estimator Model User's Guide, July 2013. http://www.caleemod.com/

9 USEPA Preferred/Recommended Models, *AERMOD Modeling System*, http://www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod.

10 Title 40 CFR Part 51, *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule,* http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf.

Project construction would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions. The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The CalEEMod was used to quantify construction-related pollutant emissions. CalEEMod output worksheets are also included in **Attachment AQ-2**.

The demolition, site preparation, and grading would occur sequentially for a period of approximately 30 days using equipment such as backhoes, graders, dozers, loaders, and haul trucks. The site is currently occupied by industrial uses of approximately 10,865 square feet that would be demolished prior to project construction. Site preparation would consist of land clearing and grubbing, haul truck trips would likely be required to export the materials from the project site. A total of approximately 968 cubic yards of cut and 4,681 cubic yards of fill is anticipated during construction.

The estimated construction equipment associated with the proposed project along with the number of pieces of equipment, daily hours of operation, horsepower (hp), and load factor (i.e., percent of full throttle) are shown in **Table AQ-4**.

Table AQ-4: Estimated Project Construction Equipment Usage

Phase	Equipment	Amount	Daily Hours	HP	Load Factor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Rubber Tired Dozers	1	8	255	0.4
Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37
Site Preparation	Graders	1	8	174	0.41
Site Preparation	Scrapers	1	8	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7	97	0.37
Grading	Graders	1	8	174	0.41
Grading	Rubber Tired Dozers	1	8	255	0.4
Grading	Tractors/Loaders/Backhoes	2	7	97	0.37
Building Construction	Cranes	1	8	226	0.29
Building Construction	Forklifts	2	7	89	0.2
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37
Building Construction	Welders	3	8	46	0.45
Paving	Cement and Mortar Mixers	1	8	9	0.56
Paving	Pavers	1	8	125	0.42
Paving	Paving Equipment	1	8	130	0.36
Paving	Rollers	2	8	80	0.38
Architectural Coating	Air Compressors	1	6	78	0.48

SOURCE: CalEEMod Version 2013.2.2.

Based on CalEEMod, a total of approximately 49 haul truck trips were estimated during demolition and approximately 706 haul trucks were estimated during grading/excavation. An average daily construction crew of 32 employees would be present on-site during building

construction with less workers during other construction phases. **Table AQ-5** provides a list of the expected trips and trip lengths by construction phase of haul trucks, vendors, and construction workers.

Table AQ-5: Construction Trips and Trip Lengths

Phase	Worker Trips	Vendor Trips	Haul Truck Trips	Worker Trip Length (mile)	Vendor Trip Length (mile)	Haul Trip Length (mile)
Demolition	13	0	49	12.4	7.3	20.0
Site Preparation	8	0	0	12.4	7.3	20.0
Grading	10	0	706	12.4	7.3	20.0
Building Construction	32	6	0	12.4	7.3	20.0
Paving	15	0	0	12.4	7.3	20.0
Architectural Coating	6	0	0	12.4	7.3	20.0

SOURCE: CalEEMod Version 2013.2.2.

Appendix AQ-2

Construction and Operational Emissions

CalEEMod Output Files

- Annual
- Summer
- Winter
- Mitigation Report

1525 Alviso Street

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.20	Acre	0.20	8,712.00	0
Condo/Townhouse	40.00	Dwelling Unit	2.07	74,000.00	114

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Site Plan and Project Description

Construction Phase - Approximately 24 months of construction

Demolition - Per Project Description

Grading - Per Site Plan

Vehicle Trips - Per ITE Trip Generation, 9th Edition, 2012.

Woodstoves - The Project would not include woodstoves or fireplaces

Construction Off-road Equipment Mitigation - BAAQMD Required Fugitive Dust Control Measures (Watering exposed area)
BAAQMD Basic and Enhanced Exhaust Emissions Reduction Measures (Tier 2 and DPF Level 3)

Mobile Land Use Mitigation -

Area Mitigation - BAAQMD Regulation 8, Rule 3 for Architectural Coatings

Energy Mitigation - Green Key Home: http://www.cityventures.com/green-key/

From Applicant: 280-300 kWh per month

Water Mitigation - Green Key Home: http://www.cityventures.com/green-key/

Table Name	Column Name	Default Value	New Value
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tblFireplaces	NumberGas	22.00	0.00
tblFireplaces	NumberNoFireplace	12.40	0.00
tblFireplaces	NumberWood	5.60	0.00
tblGrading	AcresOfGrading	3.00	2.07
tblGrading	AcresOfGrading	4.50	2.07
tblGrading	MaterialExported	0.00	968.00
tblGrading	MaterialImported	0.00	4,681.00
tblLandUse	LandUseSquareFeet	40,000.00	74,000.00
tblLandUse	LotAcreage	2.50	2.07
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	7.16	5.81
tblVehicleTrips	SU_TR	6.07	5.81
tblVehicleTrips	WD_TR	6.59	5.81
tblWoodstoves	NumberCatalytic	0.20	0.00
tblWoodstoves	NumberNoncatalytic	0.20	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.5017	3.4784	2.6200	4.0900e-003	0.0722	0.2161	0.2883	0.0235	0.2062	0.2297	0.0000	351.3702	351.3702	0.0675	0.0000	352.7876
2017	1.5907	2.9191	2.2885	3.6800e-003	0.0406	0.1826	0.2232	0.0109	0.1747	0.1856	0.0000	309.2576	309.2576	0.0607	0.0000	310.5326
Total	**2.0923**	**6.3975**	**4.9085**	**7.7700e-003**	**0.1127**	**0.3987**	**0.5115**	**0.0344**	**0.3808**	**0.4152**	**0.0000**	**660.6278**	**660.6278**	**0.1282**	**0.0000**	**663.3201**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.1526	2.8130	2.3774	4.0900e-003	0.0579	0.0184	0.0763	0.0174	0.0182	0.0356	0.0000	351.3699	351.3699	0.0675	0.0000	352.7872
2017	1.2990	2.5645	2.1831	3.6800e-003	0.0406	0.0164	0.0569	0.0109	0.0163	0.0272	0.0000	309.2572	309.2572	0.0607	0.0000	310.5322
Total	**1.4516**	**5.3775**	**4.5605**	**7.7700e-003**	**0.0985**	**0.0348**	**0.1333**	**0.0283**	**0.0345**	**0.0628**	**0.0000**	**660.6271**	**660.6271**	**0.1282**	**0.0000**	**663.3195**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**30.62**	**15.94**	**7.09**	**0.00**	**12.65**	**91.27**	**73.94**	**17.64**	**90.95**	**84.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3845	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953
Energy	4.2000e-003	0.0359	0.0153	2.3000e-004		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	93.9670	93.9670	3.1700e-003	1.2500e-003	94.4217
Mobile	0.1209	0.2561	1.1761	2.6700e-003	0.1926	3.4400e-003	0.1960	0.0515	3.1700e-003	0.0547	0.0000	198.0121	198.0121	7.8000e-003	0.0000	198.1759
Waste						0.0000	0.0000		0.0000	0.0000	3.7350	0.0000	3.7350	0.2207	0.0000	8.3705
Water						0.0000	0.0000		0.0000	0.0000	0.8268	5.7753	6.6021	0.0852	2.0600e-003	9.0293
Total	**0.5096**	**0.2954**	**1.4904**	**2.9200e-003**	**0.1926**	**7.9700e-003**	**0.2005**	**0.0515**	**7.7000e-003**	**0.0592**	**4.5618**	**298.2395**	**302.8014**	**0.3174**	**3.3100e-003**	**310.4926**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3845	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953
Energy	3.6700e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	85.2605	85.2605	2.9100e-003	1.1200e-003	85.6698
Mobile	0.1185	0.2397	1.1165	2.4700e-003	0.1773	3.1900e-003	0.1805	0.0474	2.9400e-003	0.0503	0.0000	182.8944	182.8944	7.2600e-003	0.0000	183.0469
Waste						0.0000	0.0000		0.0000	0.0000	3.7350	0.0000	3.7350	0.2207	0.0000	8.3705
Water						0.0000	0.0000		0.0000	0.0000	0.7028	4.6178	5.3206	0.0724	1.7500e-003	7.3826
Total	**0.5066**	**0.2745**	**1.4290**	**2.6900e-003**	**0.1773**	**7.3500e-003**	**0.1846**	**0.0474**	**7.1000e-003**	**0.0545**	**4.4378**	**273.2578**	**277.6957**	**0.3038**	**2.8700e-003**	**284.9650**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.58**	**7.08**	**4.13**	**7.88**	**7.94**	**7.78**	**7.93**	**7.94**	**7.79**	**7.92**	**2.72**	**8.38**	**8.29**	**4.28**	**13.29**	**8.22**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Site Preparation	Site Preparation	1/29/2016	2/2/2016	5	3	
3	Grading	Grading	2/3/2016	2/10/2016	5	6	
4	Building Construction	Building Construction	2/11/2016	12/1/2017	5	472	
5	Paving	Paving	12/2/2017	12/15/2017	5	10	
6	Architectural Coating	Architectural Coating	12/16/2017	12/29/2017	5	10	

Acres of Grading (Site Preparation Phase): 2.07

Acres of Grading (Grading Phase): 2.07

Acres of Paving: 0

Residential Indoor: 149,850; Residential Outdoor: 49,950; Non-Residential Indoor: 392; Non-Residential Outdoor: 131 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	49.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	706.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	32.00	6.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3500e-003	0.0000	5.3500e-003	8.1000e-004	0.0000	8.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0291	0.2826	0.2150	2.4000e-004		0.0175	0.0175		0.0163	0.0163	0.0000	22.5629	22.5629	5.7000e-003	0.0000	22.6827
Total	**0.0291**	**0.2826**	**0.2150**	**2.4000e-004**	**5.3500e-003**	**0.0175**	**0.0228**	**8.1000e-004**	**0.0163**	**0.0171**	**0.0000**	**22.5629**	**22.5629**	**5.7000e-003**	**0.0000**	**22.6827**

3.2 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3000e-004	7.3100e-003	5.7300e-003	2.0000e-005	4.1000e-004	1.0000e-004	5.1000e-004	1.1000e-004	9.0000e-005	2.0000e-004	0.0000	1.6788	1.6788	1.0000e-005	0.0000	1.6791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	6.8000e-004	6.6100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0429	1.0429	6.0000e-005	0.0000	1.0441
Total	**1.0100e-003**	**7.9900e-003**	**0.0123**	**3.0000e-005**	**1.5900e-003**	**1.1000e-004**	**1.7000e-003**	**4.2000e-004**	**1.0000e-004**	**5.2000e-004**	**0.0000**	**2.7217**	**2.7217**	**7.0000e-005**	**0.0000**	**2.7232**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4100e-003	0.0000	2.4100e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.9300e-003	0.2144	0.1556	2.4000e-004		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	22.5628	22.5628	5.7000e-003	0.0000	22.6826
Total	**8.9300e-003**	**0.2144**	**0.1556**	**2.4000e-004**	**2.4100e-003**	**1.0800e-003**	**3.4900e-003**	**3.6000e-004**	**1.0800e-003**	**1.4400e-003**	**0.0000**	**22.5628**	**22.5628**	**5.7000e-003**	**0.0000**	**22.6826**

3.2 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3000e-004	7.3100e-003	5.7300e-003	2.0000e-005	4.1000e-004	1.0000e-004	5.1000e-004	1.1000e-004	9.0000e-005	2.0000e-004	0.0000	1.6788	1.6788	1.0000e-005	0.0000	1.6791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	6.8000e-004	6.6100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0429	1.0429	6.0000e-005	0.0000	1.0441
Total	**1.0100e-003**	**7.9900e-003**	**0.0123**	**3.0000e-005**	**1.5900e-003**	**1.1000e-004**	**1.7000e-003**	**4.2000e-004**	**1.0000e-004**	**5.2000e-004**	**0.0000**	**2.7217**	**2.7217**	**7.0000e-005**	**0.0000**	**2.7232**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-003	0.0000	1.1000e-003	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0500e-003	0.0462	0.0271	4.0000e-005		2.2700e-003	2.2700e-003		2.0900e-003	2.0900e-003	0.0000	3.3749	3.3749	1.0200e-003	0.0000	3.3962
Total	**4.0500e-003**	**0.0462**	**0.0271**	**4.0000e-005**	**1.1000e-003**	**2.2700e-003**	**3.3700e-003**	**1.2000e-004**	**2.0900e-003**	**2.2100e-003**	**0.0000**	**3.3749**	**3.3749**	**1.0200e-003**	**0.0000**	**3.3962**

3.3 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0963	0.0963	1.0000e-005	0.0000	0.0964
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0963**	**0.0963**	**1.0000e-005**	**0.0000**	**0.0964**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9000e-004	0.0000	4.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1000e-003	0.0292	0.0220	4.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	3.3749	3.3749	1.0200e-003	0.0000	3.3962
Total	**1.1000e-003**	**0.0292**	**0.0220**	**4.0000e-005**	**4.9000e-004**	**1.2000e-004**	**6.1000e-004**	**5.0000e-005**	**1.2000e-004**	**1.7000e-004**	**0.0000**	**3.3749**	**3.3749**	**1.0200e-003**	**0.0000**	**3.3962**

3.3 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0963	0.0963	1.0000e-005	0.0000	0.0964
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0963**	**0.0963**	**1.0000e-005**	**0.0000**	**0.0964**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0195	0.0000	0.0195	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5600e-003	0.0898	0.0589	6.0000e-005		5.0000e-003	5.0000e-003		4.6000e-003	4.6000e-003	0.0000	5.8222	5.8222	1.7600e-003	0.0000	5.8590
Total	**8.5600e-003**	**0.0898**	**0.0589**	**6.0000e-005**	**0.0195**	**5.0000e-003**	**0.0245**	**0.0101**	**4.6000e-003**	**0.0147**	**0.0000**	**5.8222**	**5.8222**	**1.7600e-003**	**0.0000**	**5.8590**

3.4 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-003	0.1053	0.0826	2.6000e-004	5.9600e-003	1.3700e-003	7.3400e-003	1.6400e-003	1.2600e-003	2.9000e-003	0.0000	24.1888	24.1888	1.8000e-004	0.0000	24.1925
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.6000e-004	1.5300e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2407	0.2407	1.0000e-005	0.0000	0.2409
Total	**7.8100e-003**	**0.1055**	**0.0841**	**2.6000e-004**	**6.2300e-003**	**1.3700e-003**	**7.6200e-003**	**1.7100e-003**	**1.2600e-003**	**2.9700e-003**	**0.0000**	**24.4294**	**24.4294**	**1.9000e-004**	**0.0000**	**24.4335**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.7700e-003	0.0000	8.7700e-003	4.5400e-003	0.0000	4.5400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1300e-003	0.0539	0.0403	6.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	5.8221	5.8221	1.7600e-003	0.0000	5.8590
Total	**2.1300e-003**	**0.0539**	**0.0403**	**6.0000e-005**	**8.7700e-003**	**2.4000e-004**	**9.0100e-003**	**4.5400e-003**	**2.4000e-004**	**4.7800e-003**	**0.0000**	**5.8221**	**5.8221**	**1.7600e-003**	**0.0000**	**5.8590**

3.4 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-003	0.1053	0.0826	2.6000e-004	5.9600e-003	1.3700e-003	7.3400e-003	1.6400e-003	1.2600e-003	2.9000e-003	0.0000	24.1888	24.1888	1.8000e-004	0.0000	24.1925
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.6000e-004	1.5300e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2407	0.2407	1.0000e-005	0.0000	0.2409
Total	**7.8100e-003**	**0.1055**	**0.0841**	**2.6000e-004**	**6.2300e-003**	**1.3700e-003**	**7.6200e-003**	**1.7100e-003**	**1.2600e-003**	**2.9700e-003**	**0.0000**	**24.4294**	**24.4294**	**1.9000e-004**	**0.0000**	**24.4335**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4290	2.8573	1.9391	2.8900e-003		0.1886	0.1886		0.1806	0.1806	0.0000	247.5326	247.5326	0.0570	0.0000	248.7303
Total	**0.4290**	**2.8573**	**1.9391**	**2.8900e-003**		**0.1886**	**0.1886**		**0.1806**	**0.1806**	**0.0000**	**247.5326**	**247.5326**	**0.0570**	**0.0000**	**248.7303**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2600e-003	0.0695	0.0941	1.7000e-004	4.5000e-003	1.0400e-003	5.5400e-003	1.2900e-003	9.6000e-004	2.2500e-003	0.0000	15.0514	15.0514	1.2000e-004	0.0000	15.0539
Worker	0.0138	0.0194	0.1887	3.9000e-004	0.0338	2.7000e-004	0.0341	8.9900e-003	2.5000e-004	9.2400e-003	0.0000	29.7790	29.7790	1.5900e-003	0.0000	29.8124
Total	**0.0221**	**0.0889**	**0.2828**	**5.6000e-004**	**0.0383**	**1.3100e-003**	**0.0396**	**0.0103**	**1.2100e-003**	**0.0115**	**0.0000**	**44.8303**	**44.8303**	**1.7100e-003**	**0.0000**	**44.8663**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1095	2.3131	1.7796	2.8900e-003		0.0142	0.0142		0.0142	0.0142	0.0000	247.5323	247.5323	0.0570	0.0000	248.7300
Total	**0.1095**	**2.3131**	**1.7796**	**2.8900e-003**		**0.0142**	**0.0142**		**0.0142**	**0.0142**	**0.0000**	**247.5323**	**247.5323**	**0.0570**	**0.0000**	**248.7300**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2600e-003	0.0695	0.0941	1.7000e-004	4.5000e-003	1.0400e-003	5.5400e-003	1.2900e-003	9.6000e-004	2.2500e-003	0.0000	15.0514	15.0514	1.2000e-004	0.0000	15.0539
Worker	0.0138	0.0194	0.1887	3.9000e-004	0.0338	2.7000e-004	0.0341	8.9900e-003	2.5000e-004	9.2400e-003	0.0000	29.7790	29.7790	1.5900e-003	0.0000	29.8124
Total	**0.0221**	**0.0889**	**0.2828**	**5.6000e-004**	**0.0383**	**1.3100e-003**	**0.0396**	**0.0103**	**1.2100e-003**	**0.0115**	**0.0000**	**44.8303**	**44.8303**	**1.7100e-003**	**0.0000**	**44.8663**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3993	2.7430	1.9499	2.9900e-003		0.1755	0.1755		0.1680	0.1680	0.0000	254.1769	254.1769	0.0565	0.0000	255.3632
Total	**0.3993**	**2.7430**	**1.9499**	**2.9900e-003**		**0.1755**	**0.1755**		**0.1680**	**0.1680**	**0.0000**	**254.1769**	**254.1769**	**0.0565**	**0.0000**	**255.3632**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4900e-003	0.0644	0.0897	1.7000e-004	4.6500e-003	9.3000e-004	5.5800e-003	1.3300e-003	8.6000e-004	2.1900e-003	0.0000	15.3033	15.3033	1.2000e-004	0.0000	15.3058
Worker	0.0128	0.0180	0.1745	4.0000e-004	0.0350	2.7000e-004	0.0352	9.3000e-003	2.5000e-004	9.5400e-003	0.0000	29.6281	29.6281	1.5000e-003	0.0000	29.6597
Total	**0.0203**	**0.0824**	**0.2642**	**5.7000e-004**	**0.0396**	**1.2000e-003**	**0.0408**	**0.0106**	**1.1100e-003**	**0.0117**	**0.0000**	**44.9314**	**44.9314**	**1.6200e-003**	**0.0000**	**44.9655**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1133	2.3928	1.8410	2.9900e-003		0.0147	0.0147		0.0147	0.0147	0.0000	254.1766	254.1766	0.0565	0.0000	255.3629
Total	**0.1133**	**2.3928**	**1.8410**	**2.9900e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**	**0.0000**	**254.1766**	**254.1766**	**0.0565**	**0.0000**	**255.3629**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4900e-003	0.0644	0.0897	1.7000e-004	4.6500e-003	9.3000e-004	5.5800e-003	1.3300e-003	8.6000e-004	2.1900e-003	0.0000	15.3033	15.3033	1.2000e-004	0.0000	15.3058
Worker	0.0128	0.0180	0.1745	4.0000e-004	0.0350	2.7000e-004	0.0352	9.3000e-003	2.5000e-004	9.5400e-003	0.0000	29.6281	29.6281	1.5000e-003	0.0000	29.6597
Total	**0.0203**	**0.0824**	**0.2642**	**5.7000e-004**	**0.0396**	**1.2000e-003**	**0.0408**	**0.0106**	**1.1100e-003**	**0.0117**	**0.0000**	**44.9314**	**44.9314**	**1.6200e-003**	**0.0000**	**44.9655**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2000e-003	0.0823	0.0603	9.0000e-005		5.1100e-003	5.1100e-003		4.7100e-003	4.7100e-003	0.0000	8.0625	8.0625	2.4200e-003	0.0000	8.1134
Paving	2.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.4600e-003**	**0.0823**	**0.0603**	**9.0000e-005**		**5.1100e-003**	**5.1100e-003**		**4.7100e-003**	**4.7100e-003**	**0.0000**	**8.0625**	**8.0625**	**2.4200e-003**	**0.0000**	**8.1134**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.5000e-004	3.4100e-003	1.0000e-005	6.8000e-004	1.0000e-005	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.5787	0.5787	3.0000e-005	0.0000	0.5793
Total	**2.5000e-004**	**3.5000e-004**	**3.4100e-003**	**1.0000e-005**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5787**	**0.5787**	**3.0000e-005**	**0.0000**	**0.5793**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6200e-003	0.0770	0.0640	9.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	8.0625	8.0625	2.4200e-003	0.0000	8.1134
Paving	2.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8800e-003**	**0.0770**	**0.0640**	**9.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**8.0625**	**8.0625**	**2.4200e-003**	**0.0000**	**8.1134**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.5000e-004	3.4100e-003	1.0000e-005	6.8000e-004	1.0000e-005	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.5787	0.5787	3.0000e-005	0.0000	0.5793
Total	**2.5000e-004**	**3.5000e-004**	**3.4100e-003**	**1.0000e-005**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5787**	**0.5787**	**3.0000e-005**	**0.0000**	**0.5793**

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	**1.1623**	**0.0109**	**9.3400e-003**	**1.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2795**

3.7 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.4000e-004	1.3600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2315	0.2315	1.0000e-005	0.0000	0.2317
Total	**1.0000e-004**	**1.4000e-004**	**1.3600e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2315**	**0.2315**	**1.0000e-005**	**0.0000**	**0.2317**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7000e-004	0.0118	9.1600e-003	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	**1.1612**	**0.0118**	**9.1600e-003**	**1.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2795**

3.7 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.4000e-004	1.3600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2315	0.2315	1.0000e-005	0.0000	0.2317
Total	**1.0000e-004**	**1.4000e-004**	**1.3600e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2315**	**0.2315**	**1.0000e-005**	**0.0000**	**0.2317**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1185	0.2397	1.1165	2.4700e-003	0.1773	3.1900e-003	0.1805	0.0474	2.9400e-003	0.0503	0.0000	182.8944	182.8944	7.2600e-003	0.0000	183.0469
Unmitigated	0.1209	0.2561	1.1761	2.6700e-003	0.1926	3.4400e-003	0.1960	0.0515	3.1700e-003	0.0547	0.0000	198.0121	198.0121	7.8000e-003	0.0000	198.1759

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	232.40	232.40	232.40	518,802	477,615
Parking Lot	0.00	0.00	0.00		
Total	232.40	232.40	232.40	518,802	477,615

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551461	0.058468	0.185554	0.123211	0.029507	0.004440	0.012712	0.023230	0.001775	0.001270	0.006089	0.000516	0.001766

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	48.9815	48.9815	2.2100e-003	4.6000e-004	49.1701
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52.3974	52.3974	2.3700e-003	4.9000e-004	52.5991
NaturalGas Mitigated	3.6700e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2790	36.2790	7.0000e-004	6.7000e-004	36.4998
NaturalGas Unmitigated	4.2000e-003	0.0359	0.0153	2.3000e-004		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	41.5696	41.5696	8.0000e-004	7.6000e-004	41.8226

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	778984	4.2000e-003	0.0359	0.0153	2.3000e-004		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	41.5696	41.5696	8.0000e-004	7.6000e-004	41.8226
Total		**4.2000e-003**	**0.0359**	**0.0153**	**2.3000e-004**		**2.9000e-003**	**2.9000e-003**		**2.9000e-003**	**2.9000e-003**	**0.0000**	**41.5696**	**41.5696**	**8.0000e-004**	**7.6000e-004**	**41.8226**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	679843	3.6700e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2790	36.2790	7.0000e-004	6.7000e-004	36.4998
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.6700e-003**	**0.0313**	**0.0133**	**2.0000e-004**		**2.5300e-003**	**2.5300e-003**		**2.5300e-003**	**2.5300e-003**	**0.0000**	**36.2790**	**36.2790**	**7.0000e-004**	**6.7000e-004**	**36.4998**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	172448	50.1671	2.2700e-003	4.7000e-004	50.3602
Parking Lot	7666.56	2.2303	1.0000e-004	2.0000e-005	2.2389
Total		**52.3974**	**2.3700e-003**	**4.9000e-004**	**52.5991**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	163596	47.5919	2.1500e-003	4.5000e-004	47.7751
Parking Lot	4776.58	1.3896	6.0000e-005	1.0000e-005	1.3949
Total		**48.9815**	**2.2100e-003**	**4.6000e-004**	**49.1701**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3845	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953
Unmitigated	0.3845	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0522					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.2200e-003	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953
Total	**0.3845**	**3.4700e-003**	**0.2991**	**2.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**0.4852**	**0.4852**	**4.8000e-004**	**0.0000**	**0.4953**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0522					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.2200e-003	3.4700e-003	0.2991	2.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	0.4852	0.4852	4.8000e-004	0.0000	0.4953
Total	**0.3845**	**3.4700e-003**	**0.2991**	**2.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**0.4852**	**0.4852**	**4.8000e-004**	**0.0000**	**0.4953**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3206	0.0724	1.7500e-003	7.3826
Unmitigated	6.6021	0.0852	2.0600e-003	9.0293

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.60616 / 1.64301	6.6021	0.0852	2.0600e-003	9.0293
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.6021**	**0.0852**	**2.0600e-003**	**9.0293**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.21524 / 1.39656	5.3206	0.0724	1.7500e-003	7.3826
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.3206**	**0.0724**	**1.7500e-003**	**7.3826**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.7350	0.2207	0.0000	8.3705
Unmitigated	3.7350	0.2207	0.0000	8.3705

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	18.4	3.7350	0.2207	0.0000	8.3705
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**3.7350**	**0.2207**	**0.0000**	**8.3705**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	18.4	3.7350	0.2207	0.0000	8.3705
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**3.7350**	**0.2207**	**0.0000**	**8.3705**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

1525 Alviso Street

Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.20	Acre	0.20	8,712.00	0
Condo/Townhouse	40.00	Dwelling Unit	2.07	74,000.00	114

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Site Plan and Project Description

Construction Phase - Approximately 24 months of construction

Demolition - Per Project Description

Grading - Per Site Plan

Vehicle Trips - Per ITE Trip Generation, 9th Edition, 2012.

Woodstoves - The Project would not include woodstoves or fireplaces

Construction Off-road Equipment Mitigation - BAAQMD Required Fugitive Dust Control Measures (Watering exposed area)
BAAQMD Basic and Enhanced Exhaust Emissions Reduction Measures (Tier 2 and DPF Level 3)

Mobile Land Use Mitigation -

Area Mitigation - BAAQMD Regulation 8, Rule 3 for Architectural Coatings

Energy Mitigation - Green Key Home: http://www.cityventures.com/green-key/

From Applicant: 280-300 kWh per month

Water Mitigation - Green Key Home: http://www.cityventures.com/green-key/

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	220.00	472.00
tblFireplaces	FireplaceDayYear	4.29	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	22.00	0.00
tblFireplaces	NumberNoFireplace	12.40	0.00
tblFireplaces	NumberWood	5.60	0.00
tblGrading	AcresOfGrading	3.00	2.07
tblGrading	AcresOfGrading	4.50	2.07
tblGrading	MaterialExported	0.00	968.00
tblGrading	MaterialImported	0.00	4,681.00
tblLandUse	LandUseSquareFeet	40,000.00	74,000.00
tblLandUse	LotAcreage	2.50	2.07
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	7.16	5.81
tblVehicleTrips	SU_TR	6.07	5.81
tblVehicleTrips	WD_TR	6.59	5.81
tblWoodstoves	NumberCatalytic	0.20	0.00
tblWoodstoves	NumberNoncatalytic	0.20	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.2847	63.8414	43.6159	0.1100	8.6384	2.1248	10.7632	3.9521	1.9546	5.9067	0.0000	11,130.8633	11,130.8633	0.7519	0.0000	11,146.6525
2017	232.4783	23.5118	18.4127	0.0299	0.3417	1.4720	1.8137	0.0914	1.4090	1.5004	0.0000	2,768.3013	2,768.3013	0.5409	0.0000	2,779.6593
Total	**237.7630**	**87.3532**	**62.0286**	**0.1399**	**8.9801**	**3.5968**	**12.5769**	**4.0435**	**3.3636**	**7.4071**	**0.0000**	**13,899.1646**	**13,899.1646**	**1.2927**	**0.0000**	**13,926.3118**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	3.1414	51.8687	37.4127	0.1100	5.0665	0.5375	5.6040	2.1008	0.5007	2.6015	0.0000	11,130.8633	11,130.8633	0.7519	0.0000	11,146.6525
2017	232.2599	20.5936	17.5051	0.0299	0.3417	0.1323	0.4740	0.0914	0.1315	0.2229	0.0000	2,768.3013	2,768.3013	0.5409	0.0000	2,779.6593
Total	**235.4013**	**72.4623**	**54.9179**	**0.1399**	**5.4082**	**0.6698**	**6.0779**	**2.1923**	**0.6322**	**2.8244**	**0.0000**	**13,899.1646**	**13,899.1646**	**1.2927**	**0.0000**	**13,926.3118**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.99**	**17.05**	**11.46**	**0.00**	**39.78**	**81.38**	**51.67**	**45.78**	**81.21**	**61.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Energy	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109
Mobile	0.6906	1.3227	6.3115	0.0156	1.0954	0.0189	1.1143	0.2920	0.0174	0.3094		1,269.2996	1,269.2996	0.0473		1,270.2922
Total	**2.8723**	**1.5579**	**9.7186**	**0.0170**	**1.0954**	**0.0529**	**1.1483**	**0.2920**	**0.0514**	**0.3435**	**0.0000**	**1,526.3245**	**1,526.3245**	**0.0580**	**4.6000e-003**	**1,528.9688**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Energy	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
Mobile	0.6767	1.2385	5.9429	0.0144	1.0084	0.0175	1.0259	0.2689	0.0161	0.2850		1,172.2355	1,172.2355	0.0440		1,173.1595
Total	**2.8555**	**1.4488**	**9.3393**	**0.0156**	**1.0084**	**0.0495**	**1.0580**	**0.2689**	**0.0482**	**0.3170**	**0.0000**	**1,397.3050**	**1,397.3050**	**0.0541**	**4.0200e-003**	**1,399.6862**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.59**	**7.01**	**3.90**	**7.95**	**7.94**	**6.37**	**7.87**	**7.94**	**6.36**	**7.70**	**0.00**	**8.45**	**8.45**	**6.69**	**12.61**	**8.46**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Site Preparation	Site Preparation	1/29/2016	2/2/2016	5	3	
3	Grading	Grading	2/3/2016	2/10/2016	5	6	
4	Building Construction	Building Construction	2/11/2016	12/1/2017	5	472	
5	Paving	Paving	12/2/2017	12/15/2017	5	10	
6	Architectural Coating	Architectural Coating	12/16/2017	12/29/2017	5	10	

Acres of Grading (Site Preparation Phase): 2.07

Acres of Grading (Grading Phase): 2.07

Acres of Paving: 0

Residential Indoor: 149,850; Residential Outdoor: 49,950; Non-Residential Indoor: 392; Non-Residential Outdoor: 131 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	49.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	706.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	32.00	6.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5348	0.0000	0.5348	0.0810	0.0000	0.0810			0.0000			0.0000
Off-Road	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328		2,487.1296	2,487.1296	0.6288		2,500.3343
Total	**2.9066**	**28.2579**	**21.4980**	**0.0245**	**0.5348**	**1.7445**	**2.2793**	**0.0810**	**1.6328**	**1.7137**		**2,487.1296**	**2,487.1296**	**0.6288**		**2,500.3343**

3.2 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0498	0.7048	0.4879	1.8400e-003	0.0427	9.5100e-003	0.0522	0.0117	8.7500e-003	0.0204		185.2405	185.2405	1.3700e-003		185.2692
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0522	0.0607	0.7109	1.4700e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		123.5058	123.5058	6.1400e-003		123.6348
Total	**0.1020**	**0.7654**	**1.1988**	**3.3100e-003**	**0.1653**	**0.0105**	**0.1757**	**0.0442**	**9.6200e-003**	**0.0538**		**308.7463**	**308.7463**	**7.5100e-003**		**308.9040**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2406	0.0000	0.2406	0.0364	0.0000	0.0364			0.0000			0.0000
Off-Road	0.8925	21.4395	15.5622	0.0245		0.1085	0.1085		0.1085	0.1085	0.0000	2,487.1296	2,487.1296	0.6288		2,500.3343
Total	**0.8925**	**21.4395**	**15.5622**	**0.0245**	**0.2406**	**0.1085**	**0.3491**	**0.0364**	**0.1085**	**0.1449**	**0.0000**	**2,487.1296**	**2,487.1296**	**0.6288**		**2,500.3343**

3.2 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0498	0.7048	0.4879	1.8400e-003	0.0427	9.5100e-003	0.0522	0.0117	8.7500e-003	0.0204		185.2405	185.2405	1.3700e-003		185.2692
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0522	0.0607	0.7109	1.4700e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		123.5058	123.5058	6.1400e-003		123.6348
Total	**0.1020**	**0.7654**	**1.1988**	**3.3100e-003**	**0.1653**	**0.0105**	**0.1757**	**0.0442**	**9.6200e-003**	**0.0538**		**308.7463**	**308.7463**	**7.5100e-003**		**308.9040**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7318	0.0000	0.7318	0.0790	0.0000	0.0790			0.0000			0.0000
Off-Road	2.6992	30.8238	18.0600	0.0239		1.5116	1.5116		1.3907	1.3907		2,480.1000	2,480.1000	0.7481		2,495.8099
Total	**2.6992**	**30.8238**	**18.0600**	**0.0239**	**0.7318**	**1.5116**	**2.2434**	**0.0790**	**1.3907**	**1.4697**		**2,480.1000**	**2,480.1000**	**0.7481**		**2,495.8099**

3.3 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0373	0.4375	9.1000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205		76.0036	76.0036	3.7800e-003		76.0830
Total	**0.0321**	**0.0373**	**0.4375**	**9.1000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**		**76.0036**	**76.0036**	**3.7800e-003**		**76.0830**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3293	0.0000	0.3293	0.0356	0.0000	0.0356			0.0000			0.0000
Off-Road	0.7332	19.4604	14.6507	0.0239		0.0805	0.0805		0.0805	0.0805	0.0000	2,480.1000	2,480.1000	0.7481		2,495.8099
Total	**0.7332**	**19.4604**	**14.6507**	**0.0239**	**0.3293**	**0.0805**	**0.4097**	**0.0356**	**0.0805**	**0.1160**	**0.0000**	**2,480.1000**	**2,480.1000**	**0.7481**		**2,495.8099**

3.3 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0373	0.4375	9.1000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205		76.0036	76.0036	3.7800e-003		76.0830
Total	**0.0321**	**0.0373**	**0.4375**	**9.1000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**		**76.0036**	**76.0036**	**3.7800e-003**		**76.0830**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4944	0.0000	6.4944	3.3659	0.0000	3.3659			0.0000			0.0000
Off-Road	2.8530	29.9470	19.6345	0.0206		1.6671	1.6671		1.5337	1.5337		2,139.2742	2,139.2742	0.6453		2,152.8251
Total	**2.8530**	**29.9470**	**19.6345**	**0.0206**	**6.4944**	**1.6671**	**8.1615**	**3.3659**	**1.5337**	**4.8996**		**2,139.2742**	**2,139.2742**	**0.6453**		**2,152.8251**

3.4 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3916	33.8478	23.4345	0.0883	2.0497	0.4570	2.5066	0.5612	0.4202	0.9814		8,896.5847	8,896.5847	0.0656		8,897.9629
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0467	0.5469	1.1300e-003	0.0943	7.3000e-004	0.0950	0.0250	6.7000e-004	0.0257		95.0045	95.0045	4.7300e-003		95.1037
Total	**2.4317**	**33.8945**	**23.9814**	**0.0894**	**2.1440**	**0.4577**	**2.6017**	**0.5862**	**0.4209**	**1.0071**		**8,991.5891**	**8,991.5891**	**0.0704**		**8,993.0666**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9225	0.0000	2.9225	1.5146	0.0000	1.5146			0.0000			0.0000
Off-Road	0.7097	17.9743	13.4314	0.0206		0.0798	0.0798		0.0798	0.0798	0.0000	2,139.2742	2,139.2742	0.6453		2,152.8251
Total	**0.7097**	**17.9743**	**13.4314**	**0.0206**	**2.9225**	**0.0798**	**3.0023**	**1.5146**	**0.0798**	**1.5945**	**0.0000**	**2,139.2742**	**2,139.2742**	**0.6453**		**2,152.8251**

3.4 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3916	33.8478	23.4345	0.0883	2.0497	0.4570	2.5066	0.5612	0.4202	0.9814		8,896.5847	8,896.5847	0.0656		8,897.9629
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0467	0.5469	1.1300e-003	0.0943	7.3000e-004	0.0950	0.0250	6.7000e-004	0.0257		95.0045	95.0045	4.7300e-003		95.1037
Total	**2.4317**	**33.8945**	**23.9814**	**0.0894**	**2.1440**	**0.4577**	**2.6017**	**0.5862**	**0.4209**	**1.0071**		**8,991.5891**	**8,991.5891**	**0.0704**		**8,993.0666**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6984	24.6320	16.7166	0.0249		1.6257	1.6257		1.5569	1.5569		2,352.2239	2,352.2239	0.5420		2,363.6057
Total	**3.6984**	**24.6320**	**16.7166**	**0.0249**		**1.6257**	**1.6257**		**1.5569**	**1.5569**		**2,352.2239**	**2,352.2239**	**0.5420**		**2,363.6057**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0646	0.5800	0.6582	1.4300e-003	0.0399	8.9400e-003	0.0488	0.0114	8.2200e-003	0.0196		143.4895	143.4895	1.1400e-003		143.5134
Worker	0.1284	0.1493	1.7499	3.6300e-003	0.3018	2.3300e-003	0.3041	0.0800	2.1400e-003	0.0822		304.0143	304.0143	0.0151		304.3318
Total	**0.1930**	**0.7293**	**2.4081**	**5.0600e-003**	**0.3417**	**0.0113**	**0.3529**	**0.0914**	**0.0104**	**0.1018**		**447.5038**	**447.5038**	**0.0163**		**447.8452**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9440	19.9403	15.3416	0.0249		0.1223	0.1223		0.1223	0.1223	0.0000	2,352.2239	2,352.2239	0.5420		2,363.6057
Total	**0.9440**	**19.9403**	**15.3416**	**0.0249**		**0.1223**	**0.1223**		**0.1223**	**0.1223**	**0.0000**	**2,352.2239**	**2,352.2239**	**0.5420**		**2,363.6057**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0646	0.5800	0.6582	1.4300e-003	0.0399	8.9400e-003	0.0488	0.0114	8.2200e-003	0.0196		143.4895	143.4895	1.1400e-003		143.5134
Worker	0.1284	0.1493	1.7499	3.6300e-003	0.3018	2.3300e-003	0.3041	0.0800	2.1400e-003	0.0822		304.0143	304.0143	0.0151		304.3318
Total	**0.1930**	**0.7293**	**2.4081**	**5.0600e-003**	**0.3417**	**0.0113**	**0.3529**	**0.0914**	**0.0104**	**0.1018**		**447.5038**	**447.5038**	**0.0163**		**447.8452**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3275	22.8585	16.2492	0.0249		1.4621	1.4621		1.3998	1.3998		2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**3.3275**	**22.8585**	**16.2492**	**0.0249**		**1.4621**	**1.4621**		**1.3998**	**1.3998**		**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0569	0.5194	0.5931	1.4300e-003	0.0399	7.7300e-003	0.0476	0.0114	7.1000e-003	0.0185		141.0293	141.0293	1.0800e-003		141.0520
Worker	0.1156	0.1339	1.5704	3.6300e-003	0.3018	2.2200e-003	0.3040	0.0800	2.0500e-003	0.0821		292.4217	292.4217	0.0138		292.7119
Total	**0.1725**	**0.6533**	**2.1635**	**5.0600e-003**	**0.3417**	**9.9500e-003**	**0.3516**	**0.0914**	**9.1500e-003**	**0.1006**		**433.4510**	**433.4510**	**0.0149**		**433.7638**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9440	19.9403	15.3416	0.0249		0.1223	0.1223		0.1223	0.1223	0.0000	2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**0.9440**	**19.9403**	**15.3416**	**0.0249**		**0.1223**	**0.1223**		**0.1223**	**0.1223**	**0.0000**	**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0569	0.5194	0.5931	1.4300e-003	0.0399	7.7300e-003	0.0476	0.0114	7.1000e-003	0.0185		141.0293	141.0293	1.0800e-003		141.0520
Worker	0.1156	0.1339	1.5704	3.6300e-003	0.3018	2.2200e-003	0.3040	0.0800	2.0500e-003	0.0821		292.4217	292.4217	0.0138		292.7119
Total	**0.1725**	**0.6533**	**2.1635**	**5.0600e-003**	**0.3417**	**9.9500e-003**	**0.3516**	**0.0914**	**9.1500e-003**	**0.1006**		**433.4510**	**433.4510**	**0.0149**		**433.7638**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6402	16.4619	12.0566	0.0176		1.0230	1.0230		0.9423	0.9423		1,777.4745	1,777.4745	0.5344		1,788.6966
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6926**	**16.4619**	**12.0566**	**0.0176**		**1.0230**	**1.0230**		**0.9423**	**0.9423**		**1,777.4745**	**1,777.4745**	**0.5344**		**1,788.6966**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0542	0.0628	0.7361	1.7000e-003	0.1415	1.0400e-003	0.1425	0.0375	9.6000e-004	0.0385		137.0727	137.0727	6.4800e-003		137.2087
Total	**0.0542**	**0.0628**	**0.7361**	**1.7000e-003**	**0.1415**	**1.0400e-003**	**0.1425**	**0.0375**	**9.6000e-004**	**0.0385**		**137.0727**	**137.0727**	**6.4800e-003**		**137.2087**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7250	15.4034	12.7897	0.0176		0.0827	0.0827		0.0827	0.0827	0.0000	1,777.4745	1,777.4745	0.5344		1,788.6966
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7774**	**15.4034**	**12.7897**	**0.0176**		**0.0827**	**0.0827**		**0.0827**	**0.0827**	**0.0000**	**1,777.4745**	**1,777.4745**	**0.5344**		**1,788.6966**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0542	0.0628	0.7361	1.7000e-003	0.1415	1.0400e-003	0.1425	0.0375	9.6000e-004	0.0385		137.0727	137.0727	6.4800e-003		137.2087
Total	**0.0542**	**0.0628**	**0.7361**	**1.7000e-003**	**0.1415**	**1.0400e-003**	**0.1425**	**0.0375**	**9.6000e-004**	**0.0385**		**137.0727**	**137.0727**	**6.4800e-003**		**137.2087**

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	232.1243					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**232.4566**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

3.7 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0251	0.2945	6.8000e-004	0.0566	4.2000e-004	0.0570	0.0150	3.8000e-004	0.0154		54.8291	54.8291	2.5900e-003		54.8835
Total	**0.0217**	**0.0251**	**0.2945**	**6.8000e-004**	**0.0566**	**4.2000e-004**	**0.0570**	**0.0150**	**3.8000e-004**	**0.0154**		**54.8291**	**54.8291**	**2.5900e-003**		**54.8835**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	232.1243					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**232.2382**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

3.7 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0251	0.2945	6.8000e-004	0.0566	4.2000e-004	0.0570	0.0150	3.8000e-004	0.0154		54.8291	54.8291	2.5900e-003		54.8835
Total	**0.0217**	**0.0251**	**0.2945**	**6.8000e-004**	**0.0566**	**4.2000e-004**	**0.0570**	**0.0150**	**3.8000e-004**	**0.0154**		**54.8291**	**54.8291**	**2.5900e-003**		**54.8835**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6767	1.2385	5.9429	0.0144	1.0084	0.0175	1.0259	0.2689	0.0161	0.2850		1,172.2355	1,172.2355	0.0440		1,173.1595
Unmitigated	0.6906	1.3227	6.3115	0.0156	1.0954	0.0189	1.1143	0.2920	0.0174	0.3094		1,269.2996	1,269.2996	0.0473		1,270.2922

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	232.40	232.40	232.40	518,802	477,615
Parking Lot	0.00	0.00	0.00		
Total	232.40	232.40	232.40	518,802	477,615

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551461	0.058468	0.185554	0.123211	0.029507	0.004440	0.012712	0.023230	0.001775	0.001270	0.006089	0.000516	0.001766

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
NaturalGas Unmitigated	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2134.2	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0230**	**0.1967**	**0.0837**	**1.2600e-003**		**0.0159**	**0.0159**		**0.0159**	**0.0159**		**251.0828**	**251.0828**	**4.8100e-003**	**4.6000e-003**	**252.6109**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	1.86258	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0201**	**0.1717**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.1274**	**219.1274**	**4.2000e-003**	**4.0200e-003**	**220.4610**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Unmitigated	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1025	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181		5.9421	5.9421	5.8900e-003		6.0658
Total	**2.1587**	**0.0386**	**3.3234**	**1.7000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**5.9421**	**5.9421**	**5.8900e-003**	**0.0000**	**6.0658**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1025	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181		5.9421	5.9421	5.8900e-003		6.0658
Total	**2.1587**	**0.0386**	**3.3234**	**1.7000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**5.9421**	**5.9421**	**5.8900e-003**	**0.0000**	**6.0658**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

1525 Alviso Street

Santa Clara County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.20	Acre	0.20	8,712.00	0
Condo/Townhouse	40.00	Dwelling Unit	2.07	74,000.00	114

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Site Plan and Project Description

Construction Phase - Approximately 24 months of construction

Demolition - Per Project Description

Grading - Per Site Plan

Vehicle Trips - Per ITE Trip Generation, 9th Edition, 2012.

Woodstoves - The Project would not include woodstoves or fireplaces

Construction Off-road Equipment Mitigation - BAAQMD Required Fugitive Dust Control Measures (Watering exposed area)
BAAQMD Basic and Enhanced Exhaust Emissions Reduction Measures (Tier 2 and DPF Level 3)

Mobile Land Use Mitigation -

Area Mitigation - BAAQMD Regulation 8, Rule 3 for Architectural Coatings

Energy Mitigation - Green Key Home: http://www.cityventures.com/green-key/

From Applicant: 280-300 kWh per month

Water Mitigation - Green Key Home: http://www.cityventures.com/green-key/

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	220.00	472.00
tblFireplaces	FireplaceDayYear	4.29	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	22.00	0.00
tblFireplaces	NumberNoFireplace	12.40	0.00
tblFireplaces	NumberWood	5.60	0.00
tblGrading	AcresOfGrading	3.00	2.07
tblGrading	AcresOfGrading	4.50	2.07
tblGrading	MaterialExported	0.00	968.00
tblGrading	MaterialImported	0.00	4,681.00
tblLandUse	LandUseSquareFeet	40,000.00	74,000.00
tblLandUse	LotAcreage	2.50	2.07
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	7.16	5.81
tblVehicleTrips	SU_TR	6.07	5.81
tblVehicleTrips	WD_TR	6.59	5.81
tblWoodstoves	NumberCatalytic	0.20	0.00
tblWoodstoves	NumberNoncatalytic	0.20	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.6684	65.6398	51.9320	0.1098	8.6384	2.1261	10.7645	3.9521	1.9558	5.9079	0.0000	11,102.4107	11,102.4107	0.7519	0.0000	11,118.1999
2017	232.4781	23.5650	18.6479	0.0296	0.3417	1.4721	1.8138	0.0914	1.4090	1.5005	0.0000	2,743.6217	2,743.6217	0.5409	0.0000	2,754.9797
Total	**238.1464**	**89.2048**	**70.5799**	**0.1395**	**8.9801**	**3.5982**	**12.5783**	**4.0435**	**3.3648**	**7.4084**	**0.0000**	**13,846.0324**	**13,846.0324**	**1.2927**	**0.0000**	**13,873.1796**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	3.5251	53.6671	45.7288	0.1098	5.0665	0.5388	5.6053	2.1008	0.5019	2.6027	0.0000	11,102.4107	11,102.4107	0.7519	0.0000	11,118.1999
2017	232.2597	20.6467	17.7404	0.0296	0.3417	0.1324	0.4740	0.0914	0.1316	0.2230	0.0000	2,743.6217	2,743.6217	0.5409	0.0000	2,754.9797
Total	**235.7848**	**74.3139**	**63.4692**	**0.1395**	**5.4082**	**0.6712**	**6.0793**	**2.1923**	**0.6334**	**2.8257**	**0.0000**	**13,846.0324**	**13,846.0324**	**1.2927**	**0.0000**	**13,873.1796**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.99**	**16.69**	**10.07**	**0.00**	**39.78**	**81.35**	**51.67**	**45.78**	**81.18**	**61.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Energy	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109
Mobile	0.7152	1.4667	7.0339	0.0145	1.0954	0.0190	1.1144	0.2920	0.0175	0.3095		1,188.6238	1,188.6238	0.0473		1,189.6174
Total	**2.8969**	**1.7019**	**10.4410**	**0.0160**	**1.0954**	**0.0530**	**1.1484**	**0.2920**	**0.0515**	**0.3436**	**0.0000**	**1,445.6487**	**1,445.6487**	**0.0580**	**4.6000e-003**	**1,448.2940**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Energy	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
Mobile	0.7017	1.3727	6.7063	0.0134	1.0084	0.0176	1.0260	0.2689	0.0162	0.2851		1,097.8404	1,097.8404	0.0441		1,098.7655
Total	**2.8804**	**1.5829**	**10.1027**	**0.0147**	**1.0084**	**0.0496**	**1.0581**	**0.2689**	**0.0483**	**0.3171**	**0.0000**	**1,322.9100**	**1,322.9100**	**0.0541**	**4.0200e-003**	**1,325.2922**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.57**	**6.99**	**3.24**	**7.95**	**7.94**	**6.36**	**7.87**	**7.94**	**6.35**	**7.70**	**0.00**	**8.49**	**8.49**	**6.69**	**12.61**	**8.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Site Preparation	Site Preparation	1/29/2016	2/2/2016	5	3	
3	Grading	Grading	2/3/2016	2/10/2016	5	6	
4	Building Construction	Building Construction	2/11/2016	12/1/2017	5	472	
5	Paving	Paving	12/2/2017	12/15/2017	5	10	
6	Architectural Coating	Architectural Coating	12/16/2017	12/29/2017	5	10	

Acres of Grading (Site Preparation Phase): 2.07

Acres of Grading (Grading Phase): 2.07

Acres of Paving: 0

Residential Indoor: 149,850; Residential Outdoor: 49,950; Non-Residential Indoor: 392; Non-Residential Outdoor: 131 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	49.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	706.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	32.00	6.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5348	0.0000	0.5348	0.0810	0.0000	0.0810			0.0000			0.0000
Off-Road	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328		2,487.1296	2,487.1296	0.6288		2,500.3343
Total	**2.9066**	**28.2579**	**21.4980**	**0.0245**	**0.5348**	**1.7445**	**2.2793**	**0.0810**	**1.6328**	**1.7137**		**2,487.1296**	**2,487.1296**	**0.6288**		**2,500.3343**

3.2 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0578	0.7420	0.6616	1.8400e-003	0.0427	9.5400e-003	0.0522	0.0117	8.7700e-003	0.0205		184.8075	184.8075	1.3800e-003		184.8366
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0742	0.6825	1.3500e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		113.5528	113.5528	6.1400e-003		113.6818
Total	**0.1099**	**0.8162**	**1.3440**	**3.1900e-003**	**0.1653**	**0.0105**	**0.1758**	**0.0442**	**9.6400e-003**	**0.0538**		**298.3603**	**298.3603**	**7.5200e-003**		**298.5184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2406	0.0000	0.2406	0.0364	0.0000	0.0364			0.0000			0.0000
Off-Road	0.8925	21.4395	15.5622	0.0245		0.1085	0.1085		0.1085	0.1085	0.0000	2,487.1296	2,487.1296	0.6288		2,500.3343
Total	**0.8925**	**21.4395**	**15.5622**	**0.0245**	**0.2406**	**0.1085**	**0.3491**	**0.0364**	**0.1085**	**0.1449**	**0.0000**	**2,487.1296**	**2,487.1296**	**0.6288**		**2,500.3343**

3.2 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0578	0.7420	0.6616	1.8400e-003	0.0427	9.5400e-003	0.0522	0.0117	8.7700e-003	0.0205		184.8075	184.8075	1.3800e-003		184.8366
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0742	0.6825	1.3500e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		113.5528	113.5528	6.1400e-003		113.6818
Total	**0.1099**	**0.8162**	**1.3440**	**3.1900e-003**	**0.1653**	**0.0105**	**0.1758**	**0.0442**	**9.6400e-003**	**0.0538**		**298.3603**	**298.3603**	**7.5200e-003**		**298.5184**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7318	0.0000	0.7318	0.0790	0.0000	0.0790			0.0000			0.0000
Off-Road	2.6992	30.8238	18.0600	0.0239		1.5116	1.5116		1.3907	1.3907		2,480.1000	2,480.1000	0.7481		2,495.8099
Total	**2.6992**	**30.8238**	**18.0600**	**0.0239**	**0.7318**	**1.5116**	**2.2434**	**0.0790**	**1.3907**	**1.4697**		**2,480.1000**	**2,480.1000**	**0.7481**		**2,495.8099**

3.3 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0457	0.4200	8.3000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205		69.8787	69.8787	3.7800e-003		69.9580
Total	**0.0321**	**0.0457**	**0.4200**	**8.3000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**		**69.8787**	**69.8787**	**3.7800e-003**		**69.9580**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3293	0.0000	0.3293	0.0356	0.0000	0.0356			0.0000			0.0000
Off-Road	0.7332	19.4604	14.6507	0.0239		0.0805	0.0805		0.0805	0.0805	0.0000	2,480.1000	2,480.1000	0.7481		2,495.8099
Total	**0.7332**	**19.4604**	**14.6507**	**0.0239**	**0.3293**	**0.0805**	**0.4097**	**0.0356**	**0.0805**	**0.1160**	**0.0000**	**2,480.1000**	**2,480.1000**	**0.7481**		**2,495.8099**

3.3 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0457	0.4200	8.3000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205		69.8787	69.8787	3.7800e-003		69.9580
Total	**0.0321**	**0.0457**	**0.4200**	**8.3000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**		**69.8787**	**69.8787**	**3.7800e-003**		**69.9580**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4944	0.0000	6.4944	3.3659	0.0000	3.3659			0.0000			0.0000
Off-Road	2.8530	29.9470	19.6345	0.0206		1.6671	1.6671		1.5337	1.5337		2,139.2742	2,139.2742	0.6453		2,152.8251
Total	**2.8530**	**29.9470**	**19.6345**	**0.0206**	**6.4944**	**1.6671**	**8.1615**	**3.3659**	**1.5337**	**4.8996**		**2,139.2742**	**2,139.2742**	**0.6453**		**2,152.8251**

3.4 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.7753	35.6358	31.7725	0.0882	2.0497	0.4583	2.5080	0.5612	0.4214	0.9826		8,875.7882	8,875.7882	0.0665		8,877.1838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0571	0.5250	1.0400e-003	0.0943	7.3000e-004	0.0950	0.0250	6.7000e-004	0.0257		87.3483	87.3483	4.7300e-003		87.4476
Total	**2.8154**	**35.6929**	**32.2975**	**0.0892**	**2.1440**	**0.4590**	**2.6030**	**0.5862**	**0.4221**	**1.0083**		**8,963.1365**	**8,963.1365**	**0.0712**		**8,964.6313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9225	0.0000	2.9225	1.5146	0.0000	1.5146			0.0000			0.0000
Off-Road	0.7097	17.9743	13.4314	0.0206		0.0798	0.0798		0.0798	0.0798	0.0000	2,139.2742	2,139.2742	0.6453		2,152.8251
Total	**0.7097**	**17.9743**	**13.4314**	**0.0206**	**2.9225**	**0.0798**	**3.0023**	**1.5146**	**0.0798**	**1.5945**	**0.0000**	**2,139.2742**	**2,139.2742**	**0.6453**		**2,152.8251**

3.4 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.7753	35.6358	31.7725	0.0882	2.0497	0.4583	2.5080	0.5612	0.4214	0.9826		8,875.7882	8,875.7882	0.0665		8,877.1838
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0571	0.5250	1.0400e-003	0.0943	7.3000e-004	0.0950	0.0250	6.7000e-004	0.0257		87.3483	87.3483	4.7300e-003		87.4476
Total	**2.8154**	**35.6929**	**32.2975**	**0.0892**	**2.1440**	**0.4590**	**2.6030**	**0.5862**	**0.4221**	**1.0083**		**8,963.1365**	**8,963.1365**	**0.0712**		**8,964.6313**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6984	24.6320	16.7166	0.0249		1.6257	1.6257		1.5569	1.5569		2,352.2239	2,352.2239	0.5420		2,363.6057
Total	**3.6984**	**24.6320**	**16.7166**	**0.0249**		**1.6257**	**1.6257**		**1.5569**	**1.5569**		**2,352.2239**	**2,352.2239**	**0.5420**		**2,363.6057**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0794	0.6064	0.9677	1.4200e-003	0.0399	9.0300e-003	0.0489	0.0114	8.3000e-003	0.0197		142.3922	142.3922	1.1700e-003		142.4167
Worker	0.1282	0.1826	1.6799	3.3300e-003	0.3018	2.3300e-003	0.3041	0.0800	2.1400e-003	0.0822		279.5146	279.5146	0.0151		279.8322
Total	**0.2076**	**0.7890**	**2.6476**	**4.7500e-003**	**0.3417**	**0.0114**	**0.3530**	**0.0914**	**0.0104**	**0.1019**		**421.9068**	**421.9068**	**0.0163**		**422.2489**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9440	19.9403	15.3416	0.0249		0.1223	0.1223		0.1223	0.1223	0.0000	2,352.2239	2,352.2239	0.5420		2,363.6057
Total	**0.9440**	**19.9403**	**15.3416**	**0.0249**		**0.1223**	**0.1223**		**0.1223**	**0.1223**	**0.0000**	**2,352.2239**	**2,352.2239**	**0.5420**		**2,363.6057**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0794	0.6064	0.9677	1.4200e-003	0.0399	9.0300e-003	0.0489	0.0114	8.3000e-003	0.0197		142.3922	142.3922	1.1700e-003		142.4167
Worker	0.1282	0.1826	1.6799	3.3300e-003	0.3018	2.3300e-003	0.3041	0.0800	2.1400e-003	0.0822		279.5146	279.5146	0.0151		279.8322
Total	**0.2076**	**0.7890**	**2.6476**	**4.7500e-003**	**0.3417**	**0.0114**	**0.3530**	**0.0914**	**0.0104**	**0.1019**		**421.9068**	**421.9068**	**0.0163**		**422.2489**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3275	22.8585	16.2492	0.0249		1.4621	1.4621		1.3998	1.3998		2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**3.3275**	**22.8585**	**16.2492**	**0.0249**		**1.4621**	**1.4621**		**1.3998**	**1.3998**		**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0691	0.5428	0.9022	1.4200e-003	0.0399	7.8000e-003	0.0477	0.0114	7.1800e-003	0.0186		139.9471	139.9471	1.1100e-003		139.9704
Worker	0.1145	0.1637	1.4965	3.3300e-003	0.3018	2.2200e-003	0.3040	0.0800	2.0500e-003	0.0821		268.8242	268.8242	0.0138		269.1144
Total	**0.1836**	**0.7065**	**2.3987**	**4.7500e-003**	**0.3417**	**0.0100**	**0.3517**	**0.0914**	**9.2300e-003**	**0.1007**		**408.7714**	**408.7714**	**0.0149**		**409.0848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9440	19.9403	15.3416	0.0249		0.1223	0.1223		0.1223	0.1223	0.0000	2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**0.9440**	**19.9403**	**15.3416**	**0.0249**		**0.1223**	**0.1223**		**0.1223**	**0.1223**	**0.0000**	**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0691	0.5428	0.9022	1.4200e-003	0.0399	7.8000e-003	0.0477	0.0114	7.1800e-003	0.0186		139.9471	139.9471	1.1100e-003		139.9704
Worker	0.1145	0.1637	1.4965	3.3300e-003	0.3018	2.2200e-003	0.3040	0.0800	2.0500e-003	0.0821		268.8242	268.8242	0.0138		269.1144
Total	**0.1836**	**0.7065**	**2.3987**	**4.7500e-003**	**0.3417**	**0.0100**	**0.3517**	**0.0914**	**9.2300e-003**	**0.1007**		**408.7714**	**408.7714**	**0.0149**		**409.0848**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6402	16.4619	12.0566	0.0176		1.0230	1.0230		0.9423	0.9423		1,777.4745	1,777.4745	0.5344		1,788.6966
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6926**	**16.4619**	**12.0566**	**0.0176**		**1.0230**	**1.0230**		**0.9423**	**0.9423**		**1,777.4745**	**1,777.4745**	**0.5344**		**1,788.6966**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0767	0.7015	1.5600e-003	0.1415	1.0400e-003	0.1425	0.0375	9.6000e-004	0.0385		126.0114	126.0114	6.4800e-003		126.1474
Total	**0.0537**	**0.0767**	**0.7015**	**1.5600e-003**	**0.1415**	**1.0400e-003**	**0.1425**	**0.0375**	**9.6000e-004**	**0.0385**		**126.0114**	**126.0114**	**6.4800e-003**		**126.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7250	15.4034	12.7897	0.0176		0.0827	0.0827		0.0827	0.0827	0.0000	1,777.4745	1,777.4745	0.5344		1,788.6966
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7774**	**15.4034**	**12.7897**	**0.0176**		**0.0827**	**0.0827**		**0.0827**	**0.0827**	**0.0000**	**1,777.4745**	**1,777.4745**	**0.5344**		**1,788.6966**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0767	0.7015	1.5600e-003	0.1415	1.0400e-003	0.1425	0.0375	9.6000e-004	0.0385		126.0114	126.0114	6.4800e-003		126.1474
Total	**0.0537**	**0.0767**	**0.7015**	**1.5600e-003**	**0.1415**	**1.0400e-003**	**0.1425**	**0.0375**	**9.6000e-004**	**0.0385**		**126.0114**	**126.0114**	**6.4800e-003**		**126.1474**

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	232.1243					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**232.4566**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

3.7 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0215	0.0307	0.2806	6.2000e-004	0.0566	4.2000e-004	0.0570	0.0150	3.8000e-004	0.0154		50.4046	50.4046	2.5900e-003		50.4590
Total	**0.0215**	**0.0307**	**0.2806**	**6.2000e-004**	**0.0566**	**4.2000e-004**	**0.0570**	**0.0150**	**3.8000e-004**	**0.0154**		**50.4046**	**50.4046**	**2.5900e-003**		**50.4590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	232.1243					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**232.2382**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

3.7 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0215	0.0307	0.2806	6.2000e-004	0.0566	4.2000e-004	0.0570	0.0150	3.8000e-004	0.0154		50.4046	50.4046	2.5900e-003		50.4590
Total	**0.0215**	**0.0307**	**0.2806**	**6.2000e-004**	**0.0566**	**4.2000e-004**	**0.0570**	**0.0150**	**3.8000e-004**	**0.0154**		**50.4046**	**50.4046**	**2.5900e-003**		**50.4590**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7017	1.3727	6.7063	0.0134	1.0084	0.0176	1.0260	0.2689	0.0162	0.2851		1,097.8404	1,097.8404	0.0441		1,098.7655
Unmitigated	0.7152	1.4667	7.0339	0.0145	1.0954	0.0190	1.1144	0.2920	0.0175	0.3095		1,188.6238	1,188.6238	0.0473		1,189.6174

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	232.40	232.40	232.40	518,802	477,615
Parking Lot	0.00	0.00	0.00		
Total	232.40	232.40	232.40	518,802	477,615

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551461	0.058468	0.185554	0.123211	0.029507	0.004440	0.012712	0.023230	0.001775	0.001270	0.006089	0.000516	0.001766

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
NaturalGas Unmitigated	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	2134.2	0.0230	0.1967	0.0837	1.2600e-003		0.0159	0.0159		0.0159	0.0159		251.0828	251.0828	4.8100e-003	4.6000e-003	252.6109
Total		**0.0230**	**0.1967**	**0.0837**	**1.2600e-003**		**0.0159**	**0.0159**		**0.0159**	**0.0159**		**251.0828**	**251.0828**	**4.8100e-003**	**4.6000e-003**	**252.6109**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	1.86258	0.0201	0.1717	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.1274	219.1274	4.2000e-003	4.0200e-003	220.4610
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0201**	**0.1717**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.1274**	**219.1274**	**4.2000e-003**	**4.0200e-003**	**220.4610**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658
Unmitigated	2.1587	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181	0.0000	5.9421	5.9421	5.8900e-003	0.0000	6.0658

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1025	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181		5.9421	5.9421	5.8900e-003		6.0658
Total	**2.1587**	**0.0386**	**3.3234**	**1.7000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**5.9421**	**5.9421**	**5.8900e-003**	**0.0000**	**6.0658**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1025	0.0386	3.3234	1.7000e-004		0.0181	0.0181		0.0181	0.0181		5.9421	5.9421	5.8900e-003		6.0658
Total	**2.1587**	**0.0386**	**3.3234**	**1.7000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**5.9421**	**5.9421**	**5.8900e-003**	**0.0000**	**6.0658**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

1525 Alviso Street

Santa Clara County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	-0.07	0.02	0.00	0.92	0.92	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.70	0.15	0.06	0.00	0.91	0.91	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.67	0.23	0.26	0.00	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.39	0.18	0.13	0.00	0.75	0.74	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.53	0.06	-0.06	0.00	0.92	0.91	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.72	0.37	0.18	0.00	0.95	0.94	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 2	1	1	Level 3	0.00
Cement and Mortar Mixers	Diesel	Tier 2	1	1	Level 3	0.00
Concrete/Industrial Saws	Diesel	Tier 2	1	1	Level 3	0.00
Cranes	Diesel	Tier 2	1	1	Level 3	0.00
Forklifts	Diesel	Tier 2	2	2	Level 3	0.00
Generator Sets	Diesel	Tier 2	1	1	Level 3	0.00
Graders	Diesel	Tier 2	2	2	Level 3	0.00
Pavers	Diesel	Tier 2	1	1	Level 3	0.00
Paving Equipment	Diesel	Tier 2	1	1	Level 3	0.00
Rollers	Diesel	Tier 2	2	2	Level 3	0.00
Rubber Tired Dozers	Diesel	Tier 2	2	2	Level 3	0.00
Scrapers	Diesel	Tier 2	1	1	Level 3	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 2	8	8	Level 3	0.00
Welders	Diesel	Tier 2	3	3	Level 3	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	1.66000E-003	1.09300E-002	9.34000E-003	1.00000E-005	8.70000E-004	8.70000E-004	0.00000E+000	1.27663E+000	1.27663E+000	1.30000E-004	0.00000E+000	1.27946E+000
Cement and Mortar Mixers	2.90000E-004	1.84000E-003	1.54000E-003	0.00000E+000	7.00000E-005	7.00000E-005	0.00000E+000	2.29140E-001	2.29140E-001	2.00000E-005	0.00000E+000	2.29640E-001
Concrete/Industrial Saws	6.47000E-003	4.62200E-002	3.77500E-002	6.00000E-005	3.47000E-003	3.47000E-003	0.00000E+000	5.37657E+000	5.37657E+000	5.20000E-004	0.00000E+000	5.38750E+000
Cranes	1.61280E-001	1.91282E+000	6.77000E-001	1.33000E-003	8.60600E-002	7.91800E-002	0.00000E+000	1.24531E+002	1.24531E+002	3.78600E-002	0.00000E+000	1.25326E+002
Forklifts	9.03700E-002	7.80060E-001	5.18700E-001	6.30000E-004	6.48000E-002	5.96200E-002	0.00000E+000	5.89979E+001	5.89979E+001	1.79400E-002	0.00000E+000	5.93746E+001
Generator Sets	1.42550E-001	1.09653E+000	8.93980E-001	1.55000E-003	7.53400E-002	7.53400E-002	0.00000E+000	1.33389E+002	1.33389E+002	1.14900E-002	0.00000E+000	1.33630E+002
Graders	4.58000E-003	4.67100E-002	2.21700E-002	3.00000E-005	2.62000E-003	2.41000E-003	0.00000E+000	2.65109E+000	2.65109E+000	8.00000E-004	0.00000E+000	2.66789E+000
Pavers	1.80000E-003	2.01500E-002	1.41800E-002	2.00000E-005	9.90000E-004	9.10000E-004	0.00000E+000	2.09566E+000	2.09566E+000	6.40000E-004	0.00000E+000	2.10915E+000
Paving Equipment	1.41000E-003	1.60800E-002	1.26800E-002	2.00000E-005	8.00000E-004	7.40000E-004	0.00000E+000	1.86132E+000	1.86132E+000	5.70000E-004	0.00000E+000	1.87330E+000
Rollers	3.11000E-003	2.90100E-002	1.99100E-002	3.00000E-005	2.10000E-003	1.93000E-003	0.00000E+000	2.43274E+000	2.43274E+000	7.50000E-004	0.00000E+000	2.44839E+000
Rubber Tired Dozers	1.61000E-002	1.80320E-001	1.36300E-001	1.20000E-004	8.39000E-003	7.72000E-003	0.00000E+000	1.08904E+001	1.08904E+001	3.28000E-003	0.00000E+000	1.09594E+001
Scrapers	2.07000E-003	2.63900E-002	1.65300E-002	2.00000E-005	1.06000E-003	9.80000E-004	0.00000E+000	2.10577E+000	2.10577E+000	6.40000E-004	0.00000E+000	2.11911E+000
Tractors/Loaders/Backhoes	7.21800E-002	6.91370E-001	5.25520E-001	6.80000E-004	5.27100E-002	4.85000E-002	0.00000E+000	6.37112E+001	6.37112E+001	1.93500E-002	0.00000E+000	6.41175E+001
Welders	3.75980E-001	1.25378E+000	1.37400E+000	1.81000E-003	9.54200E-002	9.54200E-002	0.00000E+000	1.33260E+002	1.33260E+002	3.05700E-002	0.00000E+000	1.33902E+002

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	5.70000E-004	1.17600E-002	9.16000E-003	1.00000E-005	7.00000E-005	7.00000E-005	0.00000E+000	1.27663E+000	1.27663E+000	1.30000E-004	0.00000E+000	1.27946E+000
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.29140E-001	2.29140E-001	2.00000E-005	0.00000E+000	2.29640E-001
Concrete/Industrial Saws	2.40000E-003	4.95400E-002	3.85900E-002	6.00000E-005	3.00000E-004	3.00000E-004	0.00000E+000	5.37657E+000	5.37657E+000	5.20000E-004	0.00000E+000	5.38749E+000
Cranes	3.27400E-002	1.13211E+000	7.09280E-001	1.33000E-003	3.60000E-003	3.60000E-003	0.00000E+000	1.24531E+002	1.24531E+002	3.78600E-002	0.00000E+000	1.25326E+002
Forklifts	2.98200E-002	6.15870E-001	4.79730E-001	6.30000E-004	3.73000E-003	3.73000E-003	0.00000E+000	5.89978E+001	5.89978E+001	1.79400E-002	0.00000E+000	5.93745E+001
Generator Sets	5.95100E-002	1.22897E+000	9.57300E-001	1.55000E-003	7.45000E-003	7.45000E-003	0.00000E+000	1.33389E+002	1.33389E+002	1.14900E-002	0.00000E+000	1.33630E+002
Graders	1.08000E-003	2.36100E-002	2.09500E-002	3.00000E-005	1.10000E-004	1.10000E-004	0.00000E+000	2.65109E+000	2.65109E+000	8.00000E-004	0.00000E+000	2.66788E+000
Pavers	8.80000E-004	1.93100E-002	1.71300E-002	2.00000E-005	9.00000E-005	9.00000E-005	0.00000E+000	2.09566E+000	2.09566E+000	6.40000E-004	0.00000E+000	2.10914E+000
Paving Equipment	7.80000E-004	1.72100E-002	1.52700E-002	2.00000E-005	8.00000E-005	8.00000E-005	0.00000E+000	1.86132E+000	1.86132E+000	5.70000E-004	0.00000E+000	1.87330E+000
Rollers	1.23000E-003	2.54700E-002	1.98400E-002	3.00000E-005	1.50000E-004	1.50000E-004	0.00000E+000	2.43274E+000	2.43274E+000	7.50000E-004	0.00000E+000	2.44839E+000
Rubber Tired Dozers	2.81000E-003	9.70500E-002	6.08100E-002	1.20000E-004	3.10000E-004	3.10000E-004	0.00000E+000	1.08904E+001	1.08904E+001	3.28000E-003	0.00000E+000	1.09594E+001
Scrapers	5.50000E-004	1.73700E-002	1.19200E-002	2.00000E-005	6.00000E-005	6.00000E-005	0.00000E+000	2.10577E+000	2.10577E+000	6.40000E-004	0.00000E+000	2.11911E+000
Tractors/Loaders/Backhoes	3.18200E-002	6.57150E-001	5.11890E-001	6.80000E-004	3.98000E-003	3.98000E-003	0.00000E+000	6.37111E+001	6.37111E+001	1.93500E-002	0.00000E+000	6.41174E+001
Welders	7.49600E-002	1.19676E+000	1.05977E+000	1.81000E-003	1.08600E-002	1.08600E-002	0.00000E+000	1.33260E+002	1.33260E+002	3.05700E-002	0.00000E+000	1.33902E+002

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	6.56627E-001	-7.59378E-002	1.92719E-002	0.00000E+000	9.19540E-001	9.19540E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cement and Mortar Mixers	1.00000E+000	1.00000E+000	1.00000E+000	0.00000E+000	1.00000E+000	1.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Concrete/Industrial Saws	6.29057E-001	-7.18304E-002	-2.22517E-002	0.00000E+000	9.13545E-001	9.13545E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.85615E-006
Cranes	7.96999E-001	4.08146E-001	-4.76809E-002	0.00000E+000	9.58169E-001	9.54534E-001	0.00000E+000	1.12422E-006	1.12422E-006	0.00000E+000	0.00000E+000	1.19688E-006
Forklifts	6.70023E-001	2.10484E-001	7.51301E-002	0.00000E+000	9.42438E-001	9.37437E-001	0.00000E+000	1.18648E-006	1.18648E-006	0.00000E+000	0.00000E+000	1.17896E-006
Generator Sets	5.82532E-001	-1.20781E-001	-7.08293E-002	0.00000E+000	9.01115E-001	9.01115E-001	0.00000E+000	1.19950E-006	1.19950E-006	0.00000E+000	0.00000E+000	1.19733E-006
Graders	7.64192E-001	4.94541E-001	5.50293E-002	0.00000E+000	9.58015E-001	9.54357E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.74828E-006
Pavers	5.11111E-001	4.16873E-002	-2.08039E-001	0.00000E+000	9.09091E-001	9.01099E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.74125E-006
Paving Equipment	4.46809E-001	-7.02736E-002	-2.04259E-001	0.00000E+000	9.00000E-001	8.91892E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	6.04502E-001	1.22027E-001	3.51582E-003	0.00000E+000	9.28571E-001	9.22280E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	8.25466E-001	4.61790E-001	5.53852E-001	0.00000E+000	9.63051E-001	9.59845E-001	0.00000E+000	9.18240E-007	9.18240E-007	0.00000E+000	0.00000E+000	9.12460E-007
Scrapers	7.34300E-001	3.41796E-001	2.78887E-001	0.00000E+000	9.43396E-001	9.38776E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	5.59158E-001	4.94959E-002	2.59362E-002	0.00000E+000	9.24493E-001	9.17938E-001	0.00000E+000	1.25567E-006	1.25567E-006	0.00000E+000	0.00000E+000	1.09175E-006
Welders	8.00628E-001	4.54785E-002	2.28697E-001	0.00000E+000	8.86187E-001	8.86187E-001	0.00000E+000	1.20066E-006	1.20066E-006	0.00000E+000	0.00000E+000	1.19490E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
Yes	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.08	0.02	0.08	0.02	0.00	0.00
Demolition	Fugitive Dust	0.01	0.00	0.00	0.00	0.55	0.56
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.02	0.01	0.01	0.00	0.55	0.55
Grading	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.55	0.58
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.52	6.52	6.75	6.12	6.52
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.03	6.39	5.06	7.49	7.27	7.26	0.00	7.63	7.63	6.92	0.00	7.63
Natural Gas	12.62	12.71	12.70	13.04	12.76	12.76	0.00	12.73	12.73	12.50	11.84	12.73
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	15.00	20.04	19.41	15.02	15.05	18.24
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
Yes	Land Use	Increase Density	0.11	19.36	0.00	
No	Land Use	Increase Diversity	0.02	0.18		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.08			

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.08			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.08			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
Yes	Use Low VOC Paint (Residential Interior)	100.00
Yes	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	100.00
Yes	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	15.00	
Yes	Install High Efficiency Lighting	15.00	
Yes	On-site Renewable	3,480.00	0.00

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00

DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	15.00	15.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Appendix AQ-3

Health Risk Assessment Assumptions and Methodologies

A health risk assessment (HRA) is accomplished in four steps: 1) hazards identification, 2) exposure assessment, 3) toxicity assessment, and 4) risk characterization. These steps cover the estimation of air emissions, the estimation of the air concentrations resulting from a dispersion analysis, the incorporation of the toxicity of the pollutants emitted, and the characterization of the risk based on exposure parameters such as breathing rate, age adjustment factors, and exposure duration; each depending on receptor type.

This HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including USEPA, California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance*[1], and the BAAQMD *Health Risk Screening Analysis Guidelines*.[2] This HRA addresses the DPM emissions from on-site equipment and haul trucks during construction.

According to CalEPA, a HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

Terms and Definitions

As the practice of conducting a HRA is particularly complex and involves concepts that are not altogether familiar to most people, several terms and definitions are provided that are considered essential to the understanding of the approach, methodology and results:

Acute effect – a health effect (non-cancer) produced within a short period of time (few minutes to several days) following an exposure to Toxic Air Contaminants (TACs).

Cancer risk – the probability of an individual contracting cancer from a lifetime (i.e., 70 year) exposure to TAC such as DPM in the ambient air.

Chronic effect – a health effect (non-cancer) produced from a continuous exposure occurring over an extended period of time (weeks, months, years).

Hazard Index (HI) – the unitless ratio of an exposure level over the acceptable reference dose (RfC). The HI can be applied to multiple compounds in an additive manner.

Hazard Quotient (HQ) – the unitless ratio of an exposure level over the acceptable reference dose (RfC). The HQ is applied to individual compounds.

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1 Office of Environmental Health Hazard Assessment, 2003. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf.

2 Bay Area Air Quality Management District, 2005. BAAQMD *Health Risk Screening Analysis Guidelines*, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf.

Toxic air contaminants (TAC) – any air pollutant that is capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). The current California list of TAC lists approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Human Health Effects - comprise disorders such as eye watering, respiratory or heart ailments, and other (i.e., non-cancer) related diseases.

Health Risk Assessment (HRA) – an analysis designed to predict the generation and dispersion of TAC in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

Incremental – under CEQA, the net difference (or change) in conditions or impacts when comparing the baseline to future year project conditions.

Maximum exposed individual (MEI) – an individual assumed to be located at the point where the highest concentrations of TACs, and therefore, health risks are predicted to occur.

Non-cancer risks – health risks such as eye watering, respiratory or heart ailments, and other non-cancer related diseases.

Receptors – the locations where potential health impacts or risks are predicted (i.e., schools, residences, and recreational sites).

Limitations and Uncertainties

There are a number of important limitations and uncertainties commonly associated with a HRA due to the wide variability of human exposures to TACs, the extended timeframes over which the exposures are evaluated and the inability to verify the results. Among these challenges are the following:

- The HRA exposure estimates do not take into account that people do not usually reside at the same location for 70 years and that other exposures (i.e., school children) are also of much shorter durations than was assumed in this analysis. Therefore, the results of the HRA are highly overstated for those cases.
- Other limitations and uncertainties associated with HRA and identified by the CalEPA include: (a.) lack of reliable monitoring data; (b.) extrapolation of toxicity data in animals to humans; (c.) estimation errors in calculating TACs emissions; (d.) concentration prediction errors with dispersion models; and (e.) the variability in lifestyles, fitness and other confounding factors of the human population.

Hazard Identification

Diesel exhaust is a complex mixture of numerous individual gaseous and particulate compounds emitted from diesel-fueled combustion engines. Diesel particulate matter (DPM) is formed primarily through the incomplete combustion of diesel fuel. DPM is removed from the

atmosphere through physical processes including atmospheric fall-out and washout by rain. Humans can be exposed to airborne DPM by deposition on water, soil, and vegetation; although the main pathway of exposure is inhalation.

In August 1998, the CARB identified DPM as an air toxic. The CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel- Fueled Engines and Vehicles* and *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* and approved these documents on September 28, 2000.[3,4] The documents represent proposals to reduce DPM emissions, with the goal of reducing emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aimed to require the use of state-of-the-art catalyzed DPM filters and ultra-low-sulfur diesel fuel.

In 2001, CARB assessed the state-wide health risks from exposure to diesel exhaust and to other toxic air contaminants. It is difficult to distinguish the health risks of diesel emissions from those of other air toxics, since diesel exhaust contains approximately 40 different TACs. The CARB study detected diesel exhaust by using ambient air carbon soot measurements as a surrogate for diesel emissions. The study reported that the state-wide cancer risk from exposure to diesel exhaust was about 540 per million population as compared to a total risk for exposure to all ambient air toxics of 760 per million. This estimate, which accounts for about 70 percent of the total risk from TACs, included both urban and rural areas in the state. The estimate can also be considered an average worst-case for the state, since it assumes constant exposure to outdoor concentrations of diesel exhaust and does not account for expected lower concentrations indoors, where most of time is spent.

Exposure Assessment

Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. The results of a dispersion analysis are used to assess pollutant concentrations at or near an emission source. The results of an analysis allow predicted concentrations of pollutants to be compared directly to air quality standards and other criteria such as health risks based on modeled concentrations.

A rising pollutant plume reacts with the environment in several ways before it levels off. First, the plume's own turbulence interacts with atmospheric turbulence to entrain ambient air. This mixing process reduces and eventually eliminates the density and momentum differences that cause the plume to rise. Second, the wind transports the plume during its rise and entrainment process. Higher winds mix the plume more rapidly, resulting in a lower final rise. Third, the plume interacts with the vertical temperature stratification of the atmosphere, rising as a result of buoyancy in the unstable-to-neutrally stratified mixed layer. However, after the plume encounters the mixing lid and the stably stratified air above, its vertical motion is dampened.

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[3] California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October 2000. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf

[4] California Air Resources Board. *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines.* October 2000. http://www.arb.ca.gov/diesel/documents/rmgfinal.pdf

Molecules of gas or small particles injected into the atmosphere will separate from each other as they are acted on by turbulent eddies. The Gaussian mathematical model such as AERMOD simulates the dispersion of the gas or particles within the atmosphere. The formulation of the Gaussian model is based on the following assumptions:

- The predictions are not time-dependent (all conditions remain unchanged with time)
- The wind speed and direction are uniform, both horizontally and vertically, throughout the region of concern
- The rate of diffusion is not a function of position
- Diffusion in the direction of the transporting wind is negligible when compared to the transport flow

Dispersion Modeling Approach

This section presents the methodology used for the dispersion modeling analysis. This section addresses all of the fundamental components of an air dispersion modeling analysis including:

- Model selection and options
- Receptor locations
- Meteorological data
- Source release characteristics

Air dispersion modeling was performed to estimate the downwind dispersion of DPM exhaust emissions resulting from construction activities. A description of the air quality modeling parameters, including air dispersion model selection, modeling domain, source exhaust parameters, meteorological data selection, and receptor network, is provided.

Model Selection and Options

AERMOD (Version 14134)[5] was used for the dispersion analysis. AERMOD is the USEPA preferred atmospheric dispersion modeling system for general industrial sources. The model can simulate point, area, volume, and line sources. AERMOD is the appropriate model for this analysis based on the coverage of simple, intermediate, and complex terrain. It also predicts both short-term and long-term (annual) average concentrations. The model was executed using the regulatory default options (stack-tip downwash, buoyancy-induced dispersion, and final plume rise), default wind speed profile categories, default potential temperature gradients, and assuming no pollutant decay.

The selection of the appropriate dispersion coefficients depends on the land use within three kilometers (km) of the project site. The types of land use were based on the classification method defined by Auer (1978); using pertinent United States Geological Survey (USGS) 1:24,000 scale (7.5 minute) topographic maps of the area. If the Auer land use types of heavy industrial, light-to-moderate industrial, commercial, and compact residential account for 50 percent or more of the total area, the USEPA *Guideline on Air Quality Models* recommends using

5 US Environmental Protection Agency, AERMOD Modeling System, http://www.epa.gov/scram001/dispersion_prefrec.htm.

urban dispersion coefficients; otherwise, the appropriate rural coefficients can be used. Based on observation of the area surrounding the project site, rural (urban is only designated within dense city centers such as downtown San Francisco) dispersion coefficients were applied in the analysis.

Receptor Locations

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. Sensitive receptors such as residences, schools, and outdoor recreational areas near the Project were chosen as the receptors to be analyzed. The project site is directly adjacent to El Camino Real and the De La Cruz Boulevard off-ramp to the south. To the north, the site is bounded by industrial storage space, and to the east and northeast the site is bounded by existing railroad tracks belonging to the Union Pacific Railroad with CalTrain operations. To the west, across Alviso Street, are single family homes and the Mission Inn. The property directly across Alviso Street is being used as a residential alcohol rehabilitation facility, and there are at least two residences on Civic Center Drive in the block east of Lafayette Street. There are no schools or daycare centers within 1,000 feet of the project site.

Santa Clara University is located approximately 2,000 feet south of the project site. Larry Marsalli Park is located to the south of the project site and is used for recreational purposes. Traffic on Route 82, located along the southern adjacent to the project site, and rail operations located to the east of the project site, are sources of air pollutants that would affect future project residents.

Receptors were placed at a height of 1.8 meters (typical breathing height). Terrain elevations for receptor locations were used (i.e., complex terrain) based on available USGS information for the area. **Figure AQ-1** displays the location of the sensitive receptors used in the HRA. Sensitive receptors were placed at existing residences and schools to estimate health impacts due to proposed project construction on existing receptors. Sensitive receptors were also placed at the proposed project to estimate health impacts on new residences from existing sources such as the CalTrain and State Route 82.

Meteorological Data

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features affecting pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Hourly meteorological data from San Jose International Airport (surface data), located approximately five miles to the north of the project, and Oakland International Airport (upper air) were used in the dispersion modeling analysis. Meteorological data from 2010 through 2014 were used. **Figure AQ-2** displays the wind rose during this period. Wind directions are predominately from the northwest and southeast and a high frequency of calm and low wind conditions, as shown in **Figure AQ-3**. The regional average annual wind speed is 6.6 miles per hour.

FIGURE AQ-1

HEALTH RISK ASSESSMENT RECEPTORS

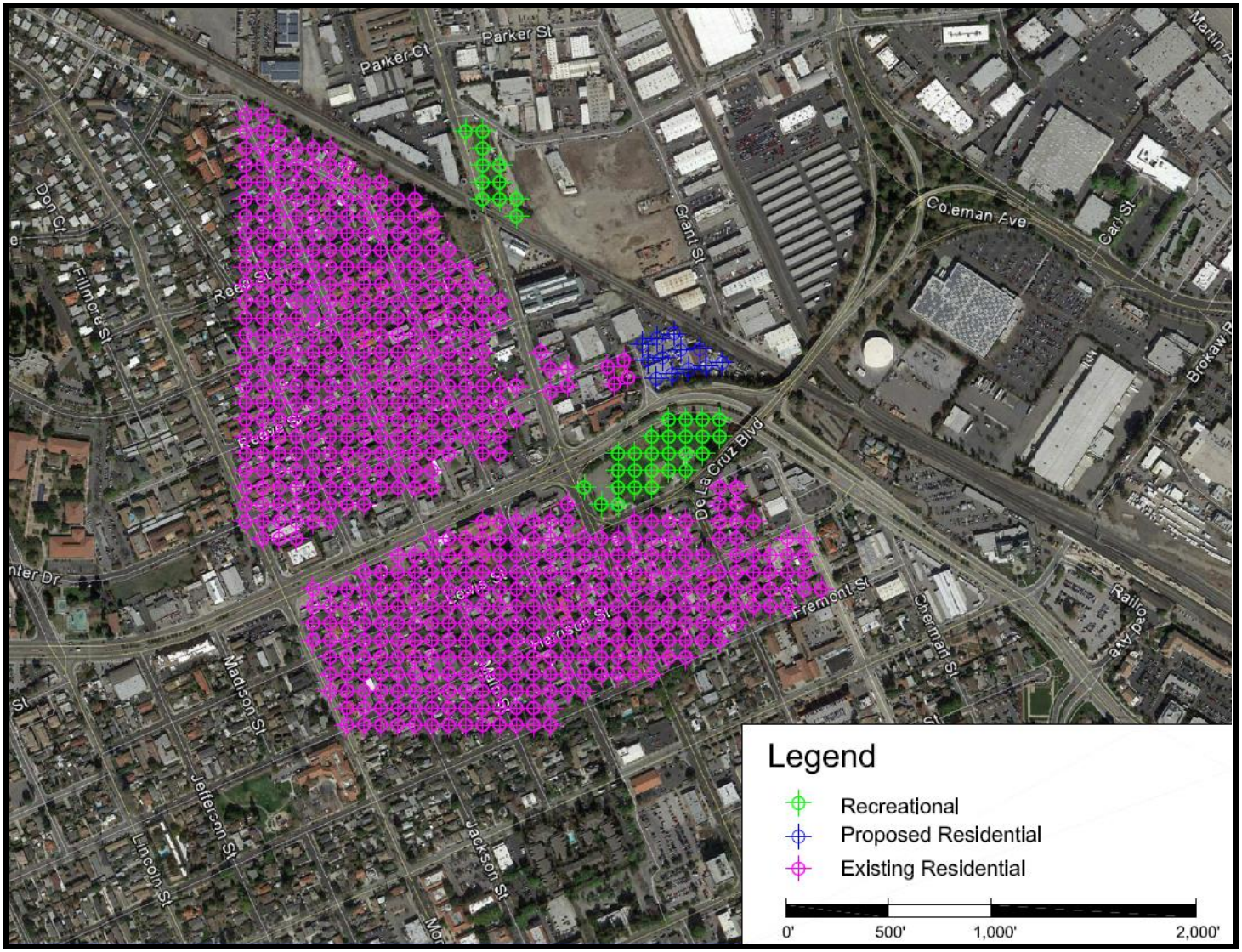


FIGURE AQ-2

WINDROSE FOR SAN JOSE INTERNATIONAL AIRPORT, CA

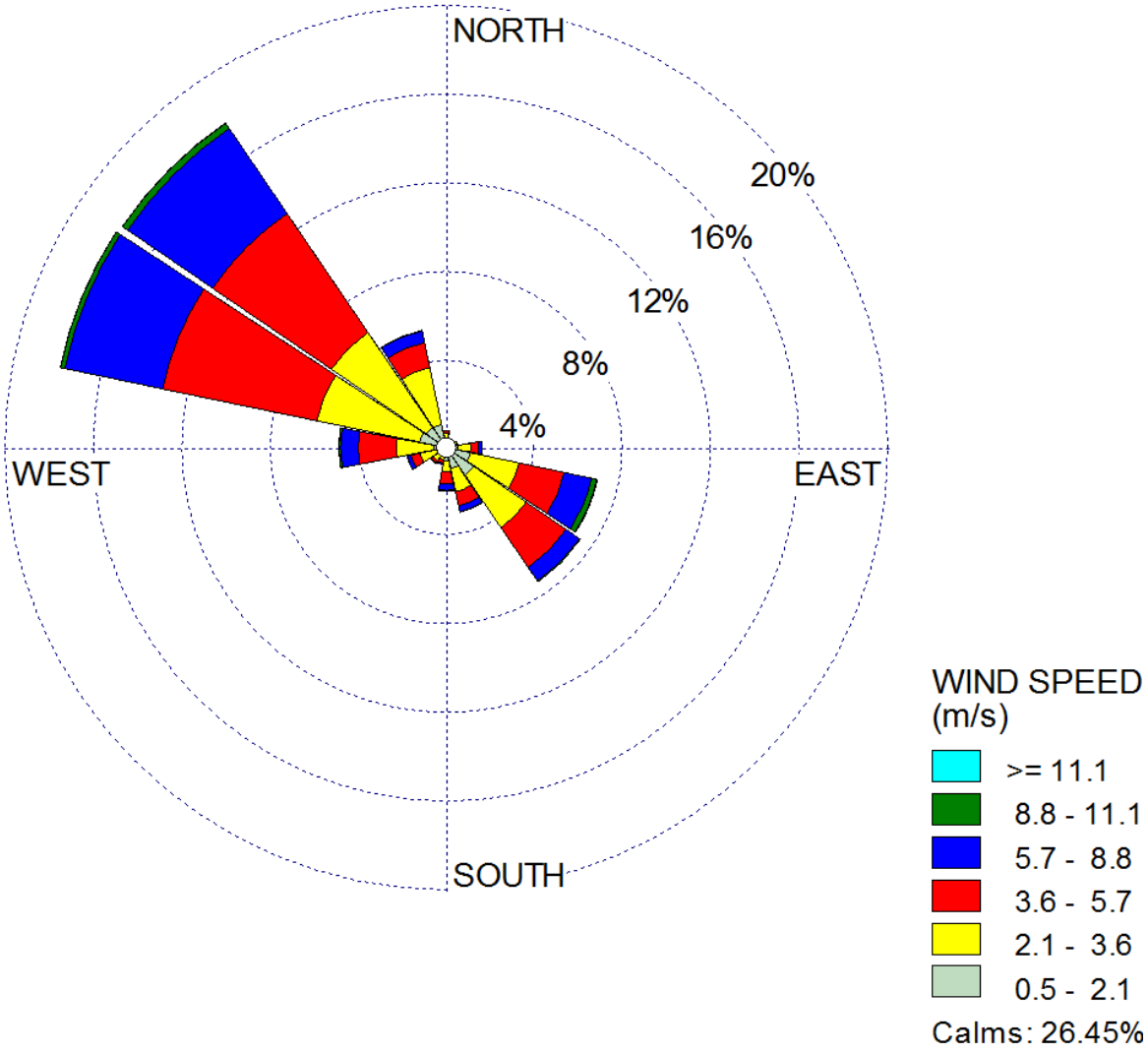
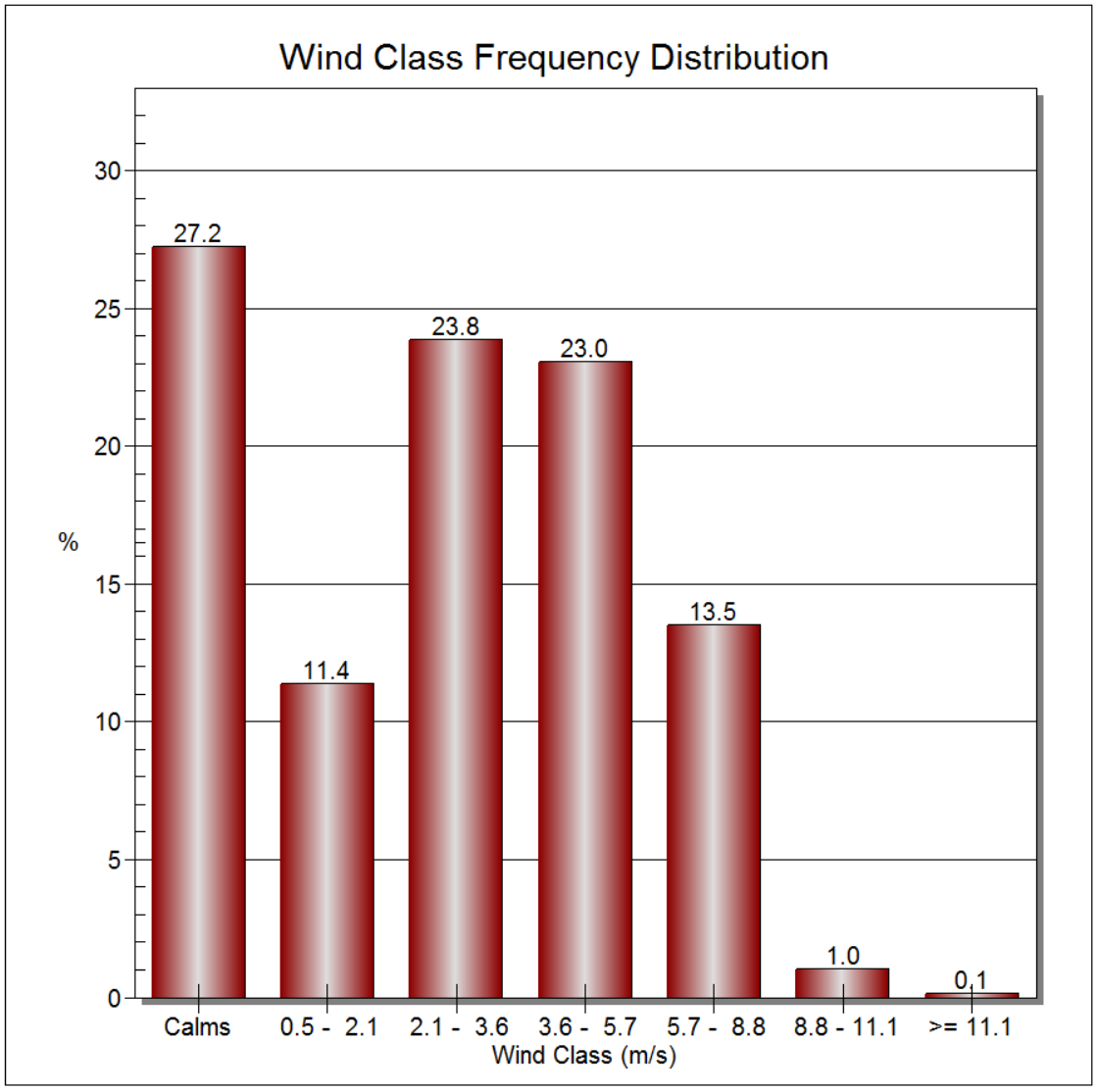


FIGURE AQ-3

WIND SPEED DISTRIBUTION FOR SAN JOSE INTERNATIONAL AIRPORT, CA



Source Release Characteristics

Off-road equipment activities were treated as an area source. The release height of the off-road equipment exhaust was 3.05 meters. Haul trucks and employee trips were treated as a line source (i.e., volume sources placed at regular intervals) located along the access road. The haul trucks were assigned a release height of 3.05 meters and an initial vertical dimension of 4.15 meters, which accounts for dispersion from the movement of vehicles. Model parameters for volume sources include emission rate, release height, and plume width. Terrain elevations for emission source locations were used (i.e., complex terrain) based on available USGS DEM for the area. AERMAP (Version 11103)[6] was used to develop the terrain elevations, although the project site is generally flat.

Temporal factors are used to describe the relationship of activity levels in one period of time to another period of time (i.e., the relationship of the activity during one-hour to the activity during a 24-hour period). The use of temporal factors gives the model the ability to more accurately reflect real world conditions. **Table AQ-6** displays the temporal factors for the CalTrain operations.

Table AQ-6: CalTrain Emission Source Temporal Distribution

Hour Ending	Weekday	Weekend
1	0.10	0.10
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.30	0.00
7	0.50	0.00
8	1.00	0.00
9	1.00	0.20
10	0.70	0.20
11	0.30	0.20
12	0.20	0.30
13	0.20	0.30
14	0.20	0.20
15	0.30	0.20
16	0.40	0.20
17	0.60	0.20
18	1.00	0.20
19	1.00	0.40
20	0.60	0.20
21	0.30	0.20
22	0.20	0.20
23	0.20	0.20
24	0.10	0.10

SOURCE: CalTrains Schedule of Service, http://www.caltrain.com/schedules/PDF_Schedules.html

6 USEPA, AERMAP, http://www.epa.gov/ttn/scram/dispersion_related.htm#aermap.

Railroad operations are typically described in terms of two different types of operation, line haul and switching. Line haul operations involve long-distance transportation between the Port and points across the country whereas switching is the local movement of railcars to prepare them for line haul transportation or to distribute them to destination terminals upon their arrival.

The types of information available for these two types of activity differs – for the on-port switching locomotives, information on each locomotive and its activity (e.g., fuel use and throttle notch setting frequency) can be used to estimate emissions, whereas for the line haul locomotives the information is more general (e.g., in terms of fuel use per ton of cargo and total tons of cargo carried). Published emissions information for switch and line haul locomotive operations in both throttle notch and fuel consumption modes along with facility operational data was used to estimate emissions.[7]

Locomotives operate differently from other types of mobile sources with respect to how they transmit power from engine to wheels. While most mobile sources use a physical coupling such as a transmission to transfer power from the engine to the wheels, a locomotive's engine turns a generator or alternator powering an electric motor that, in turn, powers the locomotive's wheels. The physical connection of a typical mobile source means that the engine's speed is dictated by the vehicle's speed through a fixed set of gear ratios, resulting in the highly transient operating conditions (particularly engine speed and load) that characterize mobile source operations.

In contrast, the locomotive's engine and drive system operate more independently, such that the engine can be operated at a particular speed without respect to the speed of the locomotive itself. This allows operation under more steady-state load and speed conditions, and as a result locomotives have been designed to operate in a series of discrete throttle settings called notches, ranging from notch positions one through eight, plus an idle position.

Many locomotives also have a feature known as dynamic braking, in which the electric drive engine operates as a generator to help slow the locomotive, with the resistance-generated power being dissipated as heat. While the engine is not generating motive power under dynamic braking, it is generating power to run cooling fans, so this operating condition is somewhat different from idling. Switch engines typically do not feature dynamic braking.

Locomotive switching activities consist of:

- Breaking up inbound trains and sorting railcars into contiguous fragments, and delivering the fragments to terminals.
- Delivering empty container flat cars to terminals.
- Delivering rail cars to non-container facilities, and removing previously delivered rail cars.
- Rearranging full and empty railcars to facilitate loading by a terminal.

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[7] U.S. Environmental Protection Agency. Emission Factors for Locomotives. April 2009. http://www.epa.gov/nonroad/locomotv/420f09025.pdf

- Picking up outbound containers in less than full train configuration and transporting them to a yard for assembly into full trains – to be transported out of the facility by one of the line haul railroads.

Line haul locomotives are typically operated in groups of two to five units, with three or four units being most common, depending on the power requirements of the specific train being pulled and the horsepower capacities of available locomotives. Thus, two higher-horsepower locomotives may be able to pull a train that would take three units with lower power outputs. Locomotives operated in sets are connected such that every engine in the set is operated in unison by an engineer in one of the locomotives.

Based on the CalTrain Schedule of Service, the air quality analysis included 76 daily rail (average per week) operations (northbound and southbound).[8] An additional eight rail operations were included to account for other rail operators such as Union Pacific. One line haul engine were assumed to operate for the CalTrain route.

Emission estimates were estimated for the CalTrain and UPRR activities. For locomotives, emissions were estimated as a function of power demand (expressed in horsepower-hours) multiplied by an emission factor (shown in **Table AQ-7)**, expressed in terms of grams per horsepower-hour (g/hp-hr), and then applied to the various activity data (**Table AQ-8**).

Table AQ-7: Emission Factors for Locomotives

Pollutant	Switch Emission Factor (g/hp-hr)	Haul Emission Factor (g/hp-hr)
PM10	0.19	0.18
PM2.5	0.18	0.17

SOURCE: U.S. Environmental Protection Agency. Emission Factors for Locomotives, April 2009.

Table AQ-8: Operational Assumptions for Locomotives

Parameters	Line Haul	Switching
Load Factor	0.20	0.25
Horsepower	3,300	2,500
Daily Operations	9	6

SOURCE: Detroit Diesel specification 4000 Series, September 2013. U.S. Environmental Protection Agency. Emission Factors for Locomotives, April 2009.

Dispersion Modeling Results

Using AERMOD, the maximum annual and 70-year average annual concentrations were determined for DPM emissions for the emission sources of concern. These concentrations were estimated for a unit emission rate (1 gram per second) and adjusted based on the calculated emission rate.

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[8] CalTrain Schedule of Service, http://www.caltrain.com/schedules/PDF_Schedules.html

The HRA was conducted following methodologies in BAAQMD's *Health Risk Screening Analysis Guidelines*[9] and OEHHA's *Air Toxics Hot Spots Program Guidance*[10]. This was accomplished by applying the highest estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations (RfC) for non-cancer health effects.

The toxicity values used in this analysis were based on OEHHA guidance. These toxicity values are for carcinogenic effects and acute/chronic health impacts. The primary pathway for exposures was assumed to be inhalation and carcinogenic and non-carcinogenic effects were evaluated separately. The incremental risks were determined for each emission source of TAC and summed to obtain an estimated total incremental carcinogenic health risk.

The 80th percentile adult breathing rate of 302 liters per kilogram per day (L/kg-day) was used to determine cancer risks to residents from exposure to TAC. The residential exposure frequency and duration was assumed to be 350 days per year and 70 years. For children, OEHHA recommends assuming a breathing rate of 581 L/kg-day to assess potential risk via the inhalation exposure pathway. This value represents the upper 95th percentile of daily breathing rates for children. The modeled DPM concentrations were used to represent the exposure concentrations in the air. The inhalation absorption factor was assumed to be 1.

Cancer risk estimates also incorporate age sensitivity factors (ASFs). This approach provides updated calculation procedures that factor in the increased susceptibility of infants and children to carcinogens as compared to adults. OEHHA recommends that cancer risks be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures from 2 years through 15 years of age. For estimating cancer risks for residential receptors over a 70 year lifetime, the incorporation of the ASFs results in a cancer risk adjustment factor (CRAF) of 1.7.

For occupational receptors, BAAQMD guidance suggests that the exposure be based on 8 hours per day, 5 days per week, 245 working days per year, and a 40-year working lifetime. This is a conservative assumption, since most people do not remain at the same job for 40 years.

Based on OEHHA recommendations (see **Table AQ-9**), the cancer risk to residential receptors assumes exposure occurs 24 hours per day for 350 days per year. For children at school sites, exposure is assumed to occur 10 hours per day for 180 days (or 36 weeks) per year. Cancer risk to residential receptors based on a 70-year lifetime exposure. Cancer risk estimates for children at school sites are calculated based on 9 year exposure duration.

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9 Bay Area Air Quality Management District, 2005. *BAAQMD Health Risk Screening Analysis Guidelines*, June 2005, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf).

10 Office of Environmental Health Hazard Assessment, 2003. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf.

Table AQ-9: Health Risk Assessment Exposure Parameters

Receptor	Breathing Rate (DBR)	Cancer Risk Adjustment Factor (CRAF)	Daily Exposure	Annual Exposure	Exposure Duration (ED)
Adult	302	1.7	24 hours	350 days	70 years
Child	581	10	24 hours	350 days	3 years
School	581	3	10 hours	180 days	9 years

SOURCE: Bay Area Air Quality Management District, *Health Risk Screening Analysis Guidelines,* June 2005, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf.

Risk Characterization

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chance in one million of getting cancer (i.e., number of cancer cases among one million people exposed). The cancer risks are assumed to occur exclusively through the inhalation pathway. The cancer risk can be estimated by using the cancer potency factor (milligrams per kilogram of body weight per day [mg/kg-day]), the 70-year annual average concentration (microgram per cubic meter [μg/m^3]), and the lifetime exposure adjustment.

Following guidelines established by OEHHA, the incremental cancer risks attributable to the proposed project were calculated by applying exposure parameters to modeled DPM concentrations in order to determine the inhalation dose (mg/kg-day) or the amount of pollutants inhaled per body weight mass per day. The cancer risks occur exclusively through the inhalation pathway; therefore, the cancer risks can be estimated from the following equation:

$$\text{Dose-inh} = \frac{C_{air} * \{DBR\} * A * CRAF * EF * ED * 10^{-6}}{AT}$$

Where:

Dose-inh = Dose of the toxic substance through inhalation in mg/kg-day

10^{-6} = Micrograms to milligrams conversion, Liters to cubic meters conversion

C_{air} = Concentration in air in microgram (μg)/cubic meter (m^3)

{DBR} = Daily breathing rate in liter (L)/kg body weight – day

A = Inhalation absorption factor

CRAF = Cancer Risk Adjustment Factor, Age Sensitivity Factor

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

AT = Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

To determine incremental cancer risk, the estimated inhalation dose attributed to the proposed project was multiplied by the cancer potency slope factor (cancer risk per mg/kg-day). The cancer potency slope factor is the upper bound on the increased cancer risk from a lifetime exposure to a pollutant. These slope factors are based on epidemiological studies and are different values for different pollutants. This allows the estimated inhalation dose to be equated to a cancer risk.

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is considered to be significant.

The HI is an expression used for the potential for non-cancer health effects. The relationship for the non-cancer health effects is given by the annual concentration (in $\mu g/m^3$) and the REL (in $\mu g/m^3$). The acute hazard index was determined using the "simple" concurrent maximum approach, which tends to be conservative (i.e., overpredicts).

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

Where:

HI	= Hazard index; an expression of the potential for non-cancer health effects.
C	= Annual average concentration ($\mu g/m^3$) during the 70 year exposure period.
REL	= Concentration at which no adverse health effects are anticipated.

The chronic REL for DPM was established by the California OEHHA[11] as 5 $\mu g/m^3$. There is no acute REL for DPM. However, diesel exhaust does contain acrolein and other compounds, which do have an acute REL. BAAQMD's DPM speciation table (based on profile 4674 within the USEPA Speciate 4.2)[12] was used to assess the acute impacts. Acrolein emissions are approximately 1.3 percent of the total emissions. The acute REL for acrolein was established by the California OEHHA[13] as 2.5 $\mu g/m^3$.

11 California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010, http://www.oehha.ca.gov//.
12 Provides for a speciation faction of 1.3 percent of acrolein per DPM emission rate, http://www.epa.gov/ttnchie1/software/speciate/
13 California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010, http://www.oehha.ca.gov//.

Cumulative Sources

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts.[14] The method for determining cumulative health risk requires the tallying of health risk from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the location of the new project-related receptors), then adding the Project impacts to determine whether the cumulative health risk thresholds are exceeded.

BAAQMD has developed a geo-referenced database of permitted emissions sources throughout the San Francisco Bay Area, and has developed the *Stationary Source Risk & Hazard Analysis Tool* for estimating cumulative health risks from permitted sources. Nine permitted sources are located within 1,000 feet of the proposed project impact area. **Table AQ-10** provides the estimated screening cancer risk, hazard impacts, and the PM2.5 concentrations for the cumulative permitted source.

Information (cancer risks and chronic index) was adjusted for distance from source to receptor, based on BAAQMD's *Distance Adjustment Multiplier for Diesel Internal Combustion Engine* and the *Distance Adjustment Multiplier for Gasoline Dispensing Facilities*. Facility 222 (Western Castings Company) contains a diesel generator and facility G9614 (Costco Wholesale #129) is a gasoline station and were adjusted accordingly. Based on site visits and correspondence with BAAQMD regarding permits, facilities 296 and 222 (Western Forge and Flange Company) were determined to no longer be operating.

Table AQ-10: Cumulative Health Impacts – Permitted Sources

Facility #	Facility Type	Address	Cancer Risk	Hazard Impact	$PM_{2.5}$ Concentration
5825	Works Auto Body	1640 Grant Street	0	0	0
11700	SRS Gilbert Industrial Coatings Inc	1597 Grant Street	298	0.105	2.96
15236	Victory Automotive Service	1710 Grant Street	0	0	0
16772	Silveira Cabinets	1741 Grant Street	0	0	0
3280	Santa Clara Plating Co	1773 Grant Street	0.01	0	0
9892	Custom Paint Finish	1849 Grant Street	0	0.004	0
296	Western Forge and Flange Company	780 Reed Street	0.12	0.001	0.304
222	Western Castings Company	1850 Grant Street	176	0.062	0.318
G9614	Costco Wholesale #129	1601 Coleman Avenue	161	0.266	-

SOURCE: Email from Alison Kirk at BAAQMD on June 25, 2015 - Stationary Source Inquiry Form Request – 1525 Alviso Street.

14 Bay Area Air Quality Management District. CEQA Air Quality Guidelines. May 2012. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en

For SRS Gilbert Industrial Coatings (ID 11700), a refined modeling analysis was used to determine the health impacts due to its painting operations and diesel compressor. The exhaust for the painting operations and diesel compressor were treated as separate point sources, based on visual inspection and permit materials.[15] For the painting operations, the stack height was estimated to be a 24 feet and the stack diameter was determined to be 2.5 feet; based on observations and located within the southeast of the facility. The exit temperature was assumed to be 70 degrees Fahrenheit and the exit velocity was assumed to be 10 meters per second; based on profession judgement. For the diesel compressor operations, the stack height was estimated to be a 24 feet and the stack diameter was determined to be 0.75 feet; based on observations and located within the center of the facility. The exit temperature was assumed to be 440 degrees Fahrenheit and the exit velocity was assumed to be 50 meters per second; based on profession judgement. A building height of 20 feet was used to estimate the influence of building downwash on the stacks. **Table AQ-11** displays the inhalation slope factors and REL for emissions from the operations.

Table AQ-11: Inhalation Slope Factor and Reference Exposure Levels

Pollutant	Inhalation Slope Factor (mg/kg-day)	Acute REL (µg/m3)	Chronic REL (µg/m3)
Benzene	0.1	27	3
Butyl cellosolve		14000	
Formaldehyde	0.021	55	9
Propylene glycol monomethyl ether			7000
Toluene		37000	300

SOURCE: California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2015, http://www.oehha.ca.gov/risk/ChemicalDB/index.asp

BAAQMD has also developed a geo-referenced database of roadways throughout the San Francisco Bay Area and has developed the *Highway Screening Analysis Tool* for estimating cumulative health risks from roadways.

Table AQ-12 displays the health impacts from State Route 82 in association with the existing and proposed residences at a height of 6 feet above ground; representing ground floor occupants. **Table AQ-13** display the health impacts from State Route 82 at a height of 20 feet above ground; representing above ground floor occupants. As shown, the health impacts from State Route 82 decrease the higher above the ground floor of the proposed project.

BAAQMD *CEQA Air Quality Guidelines* also require the inclusion of surface streets within 1,000 feet of the Project with annual average daily traffic of 10,000 or greater.[16] Upon review of nearby

[15] Permit 11700, issued February 11, 2015. SRS Gilbert Industrial Coatings Inc, 1597 Grant Street, Santa Clara, CA 95050, Public Record Request No 2015-06-0235, received July 1,, 2015.

[16] Bay Area Air Quality Management District County Surface Street Screening Tables, May 2011, http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/County%20Surface%20Street%20Screening%20Tables%20Dec%202011.ashx?la=en and CEHTP Traffic Linkage Service Demonstration, http://www.ehib.org/traffic_tool.jsp.

roadways, two roadways meets the criteria: Lafayette Street and De La Cruz Boulevard. The proposed residences are within 100 feet of Route 82 and existing residences are within 250 feet of Route 82.

Table AQ-12: Route 82 Health Impacts – 6 Feet Above Ground

Distance from Nearest Travel Lane (feet)	Cancer Risk	Chronic Impact	Acute Impact	PM2.5 Concentration
10	14.6	0.018	0.024	0.151
25	12.4	0.015	0.021	0.127
50	9.96	0.012	0.016	0.101
75	8.37	0.010	0.013	0.084
100	7.23	0.008	0.010	0.072
200	4.72	0.005	0.007	0.046
300	3.47	0.004	0.005	0.034
400	2.72	0.003	0.005	0.026
500	2.23	0.002	0.004	0.021
750	1.49	0.001	0.003	0.014
1000	1.08	0.001	0.002	0.010

SOURCE: BAAQMD *Highway Screening Analysis Tool*, May 2011.

Table AQ-13: Route 82 Health Impacts – 20 Feet Above Ground

Distance from Nearest Travel Lane (feet)	Cancer Risk	Chronic Impact	Acute Impact	PM2.5 Concentration
10	18.4	0.025	0.018	0.230
25	15.5	0.021	0.015	0.193
50	12.2	0.016	0.011	0.151
75	10.0	0.014	0.008	0.125
100	8.53	0.011	0.007	0.106
200	5.35	0.007	0.005	0.066
300	3.83	0.005	0.004	0.047
400	2.94	0.004	0.003	0.036
500	2.36	0.003	0.003	0.029
750	1.52	0.002	0.002	0.019
1000	1.07	0.001	0.002	0.013

SOURCE: BAAQMD *Highway Screening Analysis Tool*, May 2011.

Appendix AQ-4

Greenhouse Gas Setting and Regulatory Context

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur

hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in "carbon dioxide-equivalent" measures (CO_2e).[1]

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.[2]

Santa Clara County Climate Action Plan

In 2007, the Santa Clara County Board of Supervisors signed the Cool Counties Climate Stabilization Declaration and established a set of aggressive goals for GHG emissions reductions that would reduce the government's GHG emissions by 80 percent before 2050. The Climate Action Plan represents a year-long effort among multiple County agencies, resulting in a set of strategic changes in County operations, facilities and employee behaviors which will facilitate not simply emissions reductions, but water conservation, and decreases in fuel consumption and solid waste volume. [3]

City of Santa Clara Climate Action Plan

The City of Santa Clara has a comprehensive GHG emissions reduction strategy (Climate Action Plan or "CAP') to achieve its fair share of statewide emissions reductions for the 2020 timeframe consistent with AB 32, the Global Warming Solutions Act. The CAP was adopted on December 3, 2013.[4]

The CAP outlines the City's efforts to reduce GHG emissions consistent with BAAQMD's *CEQA Air Quality Guidelines* and larger statewide GHG reduction goals. The CAP estimates current (2008) and future (2020 and 2035) GHG emissions generated by community activities and sets a GHG reduction goal of 15 percent below 2008 emissions levels by 2020.[5] The City of Santa Clara CAP also specifies the strategies and measures to be taken for a number of focus areas (coal-free and large renewables, energy efficiency, water conservation, transportation and land use, waste reduction, etc.) citywide to achieve the overall emission reduction target, and includes an adaptive management process that can incorporate new technology and respond when goals are not being met.

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[1] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

[2] 2006 Final Climate Action Team Report to the Governor and Legislature. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

[3] County of Santa Clara Climate Action Plan for Operations and Facilities, September 2009, https://www.sccgov.org/sites/osp/Programs/ClimateAction/Pages/Climate-Action-Plan.aspx

[4] City of Santa Clara. 2010. *City of Santa Clara Climate Action Plan*. Adopted December 3, 2013. http://santaclaraca.gov/home/showdocument?id=10170

[5] The CAP also mentions a potential target for 2035 of 55 percent below baseline levels, but the 2035 target has not been adopted by the City.

A key reduction measure that is being undertaken by the City of Santa Clara under the CAP is in the *Coal-Free and Large Renewables* focus area. The City of Santa Clara operates Silicon Valley Power (SVP), a publicly owned utility that provides electricity for the community of Santa Clara, including the project site. Since nearly half (48 percent) of Santa Clara's GHG emissions result from electricity use, removing GHG-intensive sources of electricity generation (such as coal) is a major focus area in the CAP for achieving the City's GHG reduction goals. This measure is being undertaken by Silicon Valley Power.

CEQA clearance for all discretionary development proposals are required to address the consistency of individual projects with reduction measures in the CAP and goals and policies in the General Plan designed to reduce GHG emissions. Compliance with appropriate measures in the CAP would ensure an individual project's consistency with an adopted GHG reduction plan. Therefore, proposed projects that are consistent with the CAP would have a less than significant impact related to GHG emissions.

The CAP is incorporated as part of the City's General Plan.

City of Santa Clara General Plan and Sustainability Goals and Policies Matrix

The Santa Clara 2010-2035 General Plan includes policies that address the reduction of GHG emissions during the planning horizon of the General Plan. Goals and policies that address sustainability (see Appendix 8.13: Sustainability Goals and Policies Matrix in the General Plan) are aimed at reducing the City's contribution to GHG emissions. The City's General Plan also includes a comprehensive GHG emissions reduction strategy.

The City's current General Plan[6] includes the following goals and policies associated with GHG emissions (and particular applicability to the proposed project):

> *Policy 5.3.1-P11:* Encourage new developments proposed within a reasonable distance of an existing or proposed recycled water distribution system to utilize recycled water for landscape irrigation, industrial processes, cooling and other appropriate uses to reduce water use consistent with the CAP.
>
> *Policy 5.3.1-P14:* Encourage Transportation Demand Management strategies and the provision of bicycle and pedestrian amenities in all new development greater than 25 housing units or more than 10,000 non-residential square feet, and for City employees, in order to decrease use of the single occupant automobile and reduce vehicle miles traveled consistent with the CAP.
>
> *Policy 5.3.1-P33:* Implement, and regularly update, the City's adopted CAP to reduce GHG emissions and meet the established goals consistent with State regulations.
>
> *Policy 5.8.1-P4:* Expand transportation options and improve alternate modes that reduce GHG emissions.

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[6] City of Santa Clara. 2010. *City of Santa Clara 2010–2035 General Plan*. Adopted November 16, 2010. Last amended December 9, 2014. http://santaclaraca.gov/government/departments/planning-inspection/planning-division/general-plan

Policy 5.8.1-P5: Work with local, regional, State and private agencies, as well as employers and residents, to encourage programs and services that reduce vehicle miles traveled.

Policy 5.8.1-P6: Implement Level of Service standards that support increased transit ridership, biking and walking, in order to decrease vehicle miles traveled and reduce air pollution, energy consumption and greenhouse gas emissions.

Policy 5.8.6-P15: Require new parking lots to be surfaced with materials to reduce heat gain, consistent with the Building Code and CAP.

Policy 5.10.1-P8: Increase to 80 percent reduction for solid waste tonnage by 2020, or as consistent with the CAP.

Goal 5.10.2-G2: Reduced GHG emissions that meet the State and regional goals and requirements to combat climate change.

Policy 5.10.2-P4: Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.

Goal 5.10.3-G2: Implementation of energy conservation measures to reduce consumption.

Policy 5.10.3-P1: Promote the use of renewable energy resources, conservation and recycling programs.

Policy 5.10.3-P2: Transition away from using coal as an energy source to renewable resources by replacing coal in Silicon Valley Power's portfolio, exploring City owned property for renewable energy projects, developing solar projects, and incentivizing solar projects for residents and businesses, consistent with the CAP.

Policy 5.10.3-P3: Maximize the efficient use of energy throughout the community by achieving adopted electricity efficiency targets and promoting natural gas efficiency, consistent with the CAP.

Policy 5.10.3-P4: Encourage new development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities.

Policy 5.10.3-P5: Reduce energy consumption through sustainable construction practices, materials and recycling.

Policy 5.10.3-P6: Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.

Policy 5.10.3-P7: Encourage installation of solar energy collection through solar hot water heaters and photovoltaic arrays.

Policy 5.10.3-P8: Provide incentives for LEED certified, or equivalent development.

Policy 5.10.3-P9: Incorporate criteria for sustainable building and solar access into the City’s ordinances and regulations.

Policy 5.10.3-P11: Continue innovative energy programs to develop cost effective alternative power sources and encourage conservation.

Policy 5.10.3-P12: Work with Silicon Valley Power to implement adequate energy distribution facilities to meet the demand generated by new development.

Policy 5.10.3-P13: Work with Pacific Gas and Electric to ensure an adequate supply of natural gas to meet the demand generated by new development.

Policy 5.10.3-P14: Explore opportunities for alternative energy "fueling stations" and promote participation in shuttle services that use new technology vehicles to reduce GHG emissions.

California Green Building Standards Code

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. CALGreen is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

CALGreen does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. CALGreen also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard, which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, CALGreen is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction.

CALGreen contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. CALGreen provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. CALGreen also requires building commissioning, which is a process for verifying that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency. The following provides examples of CALGreen requirements:

- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles.

- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and-75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by installation of water-conserving fixtures or using nonpotable water systems.
- **Water use savings.** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35, and 40-percent reductions.
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas.
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard.
- **Building commissioning.** Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies.

Build It Green New Construction Green Building Guidelines

The proposed project will be designed to the specifics of the Build It Green New Construction Green Building Guidelines. These features shall be incorporated into the project design to ensure consistency with adopted City and statewide plans and programs. The proposed project will demonstrate the incorporation of project design features prior to the issuance of building or occupancy permits. The Green Point Rated certification systems are standards for a residential green building rating system which recognize performance in five categories: Community, Energy Efficiency, Indoor Air Quality and Health, Resource Conservation, and Water Conservation. Points are earned by complying with the specific standards for any of the given measures in the system. Projects are scored on overall performance and performance in each category. The points translate to a one of the following certifications, in order from Certified, Silver, Gold, and Platinum. The proposed project is anticipated to achieve the Gold certification with greater than 110 points. Some common measures include: high-efficacy lighting, Energy Star® appliances, FSC-Certified lumber, insulation with 75 percent recycled content, water efficient fixtures, solar electric panels, solar water heaters, and low or zero emitting interior paints, varnishes, cabinetry and carpeting.[7]

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[7] Build It Green, *GreenPoint Rated New Home*, https://www.builditgreen.org/greenpoint-rated/how-it-works/greenpoint-rated-new-home

The proposed project would include Green Key homes.[8] Green Key homes include high-efficiency lighting, reduced indoor and outdoor water use practices, solar technology, and many other energy efficient features.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations to achieve reductions in GHGs to meet the 1990 emissions cap by 2020.

Climate Change Scoping Plan

In October of 2013, the CARB submitted the First Update to the Climate Change Scoping Plan for public review and comment. The First Update to the Scoping Plan was approved by the CARB on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB's climate change priorities for the next five years, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

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[8] City Ventures Residences, http://www.cityventures.com/green-key/

In the First Update to the Climate Change Scoping Plan, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program. These key focus areas have overlapping and complementary interests that will require careful coordination in California's future climate and energy policies. These focus areas were selected to address issues that underlie multiple sectors of the economy. As such, each focus area is not contained to a single economic sector, but has far-reaching impacts within many economic sectors.

Greenhouse Gas Regional Emission Estimates

In 2013, the United States emitted about 6.673 billion tons of CO_2e. Of the four major sectors nationwide - residential, commercial, industrial, and transportation – electrical generation accounts for the highest fraction of GHG emissions (approximately 31 percent); these emissions are entirely generated from direct fossil fuel combustion. United States emissions increased by 2.0 percent from 2012 to 2013. Recent trends can be attributed to multiple factors including increased emissions from electricity generation, an increase in miles traveled by on-road vehicles, an increase in industrial production and emissions in multiple sectors, and year-to-year changes in the prevailing weather. Greenhouse gas emissions in 2013 were 9 percent below 2005 levels.[9]

The composition of gross GHG emissions in the United States in 2013 (expressed in terms of CO_2e) were as follows:

- CO_2 accounted for 82 percent;
- CH_4 accounted for 10 percent;
- N_2O accounted for 5 percent; and
- Fluorinated gases (HFCs, PFC, and SF_6) accounted for 3 percent.[10]

California's gross emissions of GHG decreased by 1.6 percent from 466.3 million metric tons of CO_2e in 2000 to 458.7 million metric tons in 2012, with a maximum of 492.7 million metric tons in 2004. During the same period, California's population grew by 11 percent from 34 to 37.8 million people. As a result, California's per capita GHG emissions have generally decreased over the last 12 years from 13.7 in 2000 to 12.1 million metric tons of CO_2e per person in 2012.[11] California has one of the lowest per capita GHG emission rates in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been

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9 USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013, April 2015,* http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Main-Text.pdf

10 USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013, April 2015,* http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Main-Text.pdf

11 CARB, *2014 Edition California Greenhouse Gas Emission Inventory 2000 – 2012*, May, 2014, http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf

otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The transportation sector remains the largest source of GHG emissions in 2012, accounting for 36 percent of California's GHG emission inventory. Contributions from the transportation sector include emissions from on-road and off-road vehicles, aviation, rail and water-borne vehicles, and some other minor sources. Transportation-related GHG emissions have dropped 12 percent since reaching a maximum in 2007. In 2012, emissions from the on-road category decreased by 0.5 percent from the previous year.[12]

In the San Francisco Bay Area, the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 36.4 percent each of the Bay Area's 95.8 million tons of CO_2e in 2007. Electricity/co-generation sources account for about 15.9 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.1 percent. Off-road equipment and agricultural/farming sources currently account for approximately three percent and 1.2 percent of the total Bay Area GHG emissions, respectively.[13]

Thresholds of Significance

Separate thresholds of significance are established for operational GHG emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO_2e per service population per year (i.e., emissions above this level may be considered significant). Service population is the sum of residents plus employees expected for a development project.

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12 CARB, *2014 Edition California Greenhouse Gas Emission Inventory 2000 – 2012*, May, 2014, http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf

13 BAAQMD, Source Inventory of Bay Area Greenhouse Gas Emissions, February 2010, http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx?la=en